



STIC Search Report

EIC 1700

STIC Database Tracking Number: 202634

TO: Camie Thompson

Location: REM 10D28

Art Unit : 1774

September 28, 2006

Case Serial Number: 10/785489

From: Ross Shipe

Location: EIC 1700

REMSSEN 4B31

Phone: 571/272-6018

Ross.Shipe@uspto.gov

Search Notes

Examiner Thompson:

Please review the attached search results.

If you have any questions or if you would like to refine the search query, please feel free to contact me at any time.

Thanks you for using EIC 1700 search services!

Ross Shipe (ASRC)

Technical Information Specialist



Access DB# 202634

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Camie S. Thompson Examiner #: 79244 Date: 9/20/02
Art Unit: 1774 Phone Number: 305 112 292-1530 Serial Number: 10/785,489
Mail Box and Bldg/Room Location: Room 100 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Optical Filter + Organic EI display
Inventors (please provide full names): Yasuko Baba; Masaoaki Asano

Earliest Priority Filing Date: 2/28/2003

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please do a search on all claims.

Larks

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Cntr

SEP 22 2002

Pat. & T.M. Office

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>KCS</u>	NA Sequence (#) _____	STN <input checked="" type="checkbox"/> _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic <input checked="" type="checkbox"/> _____	Dr.Link _____
Date Completed: <u>9/27/02</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>30</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>08</u>	Other _____	Other (specify) _____



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

=> d his full

(FILE 'HOME' ENTERED AT 19:01:21 ON 27 SEP 2006)

FILE 'HCAPLUS' ENTERED AT 19:17:02 ON 27 SEP 2006

L1 3034 SEA ABB=ON PLU=ON (COLOUR? OR COLOR?) (2A) FILTER?
(2A) (LAYER? OR SHEET? OR FILM?)
L2 24782 SEA ABB=ON PLU=ON (TRANSPARENT OR CLEAR) (2A) (SUBSTRAT
E? OR SURFACE? OR BASE?)
L3 52 SEA ABB=ON PLU=ON (COLOUR? OR COLOR?) (S) (LIGHT? OR
PHOTON?) (S) PIXEL? (S) INCIDENT?
L4 1081 SEA ABB=ON PLU=ON (COLOUR? OR COLOR?) (S) (LIGHT? OR
PHOTON?) (S) PIXEL?
L5 703 SEA ABB=ON PLU=ON (COLOUR? OR COLOR?) (S) (LIGHT? OR
PHOTON?) (S) INCIDENT?
L6 36059 SEA ABB=ON PLU=ON (ROUGH OR IRREGULAR? OR BUMPY OR
COARSE OR CONCAVE (2A) CONVEX OR GROOV? OR CORRUGAT? OR
UNEVEN) (2A) (LAYER? OR SURFACE? OR FILM? OR SHEET?)
L7 3 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5) AND
L6
L8 35 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5)
L9 3 SEA ABB=ON PLU=ON L8 AND (COLOUR? OR COLOR?) (3A)
CONVER?
L10 5 SEA ABB=ON PLU=ON L8 AND (EL OR E(W)L OR ELECTROLUM!IN?
OR ORGANOLUM!IN? OR LIGHT (2A) EMIT? OR EMISSION))
L11 7 SEA ABB=ON PLU=ON L7 OR L9 OR L10
L12 6 SEA ABB=ON PLU=ON L11 AND (1840-2003)/PRY,PY,AY

FILE 'WPIX' ENTERED AT 19:24:45 ON 27 SEP 2006

L13 1 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5) AND
L6
L14 65 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5)
L15 7 SEA ABB=ON PLU=ON L14 AND (COLOUR? OR COLOR?) (3A)
CONVER?
L16 12 SEA ABB=ON PLU=ON L14 AND (EL OR E(W)L OR ELECTROLUM!IN
? OR ORGANO!IN? OR LIGHT (2A) (EMIT? OR EMISSION))
L17 2 SEA ABB=ON PLU=ON L14 AND B32B00?/IC
L18 30 SEA ABB=ON PLU=ON L14 AND G02B005-20/IC
L19 1 SEA ABB=ON PLU=ON L14 AND G02B001-11/IC
L20 11 SEA ABB=ON PLU=ON L14 AND H05B033?/IC
L21 37 SEA ABB=ON PLU=ON L13 OR L15 OR L15 OR L17 OR L18 OR
L19 OR L20

FILE 'JAPIO' ENTERED AT 19:54:49 ON 27 SEP 2006

L22 3 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5) AND
L6
L23 68 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5)
L24 4 SEA ABB=ON PLU=ON L23 AND (COLOUR? OR COLOR?) (3A)
CONVER?
L25 3 SEA ABB=ON PLU=ON L23 AND (EL OR E(W)L OR ELECTROLUM!IN
? OR ORGANO!IN? OR LIGHT (2A) (EMIT? OR EMISSION))
L26 0 SEA ABB=ON PLU=ON L23 AND B32B00?/IC
L27 4 SEA ABB=ON PLU=ON L23 AND G02B001-11/IC
L28 3 SEA ABB=ON PLU=ON L23 AND H05B033?/IC
L29 9 SEA ABB=ON PLU=ON L22 OR L24 OR L24 OR L27 OR L28
L30 9 SEA ABB=ON PLU=ON L29 AND (1840-2003)/PRY,PY,AY

FILE 'JICST-EPLUS' ENTERED AT 20:03:43 ON 27 SEP 2006

L31 0 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5) AND
L6
L32 3 SEA ABB=ON PLU=ON L1 AND L2 AND (L2 OR L4 OR L5)
L33 0 SEA ABB=ON PLU=ON L23 AND (COLOUR? OR COLOR?) (3A)
CONVER?
L34 1 SEA ABB=ON PLU=ON L32 AND (EL OR E(W)L OR ELECTROLUM!IN
? OR ORGANO!IN? OR LIGHT (2A) (EMIT? OR EMISSION))
L35 3 SEA ABB=ON PLU=ON L31 OR L32 OR L34

L36 2 SEA ABB=ON PLU=ON L35 AND (1840-2003)/PRY,PY,AY
 FILE 'COMPENDEX' ENTERED AT 20:05:59 ON 27 SEP 2006
 L37 0 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5) AND
 L6
 L38 0 SEA ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR L5)
 L39 0 SEA ABB=ON PLU=ON L37 OR L38

=> file wpix

FILE 'WPIX' ENTERED AT 20:11:16 ON 27 SEP 2006
 COPYRIGHT (C) 2006 THE THOMSON CORPORATION

=> d l21 que stat

L1 3034 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?)
 (2A) FILTER? (2A) (LAYER? OR SHEET? OR FILM?)
 L2 24782 SEA FILE=HCAPLUS ABB=ON PLU=ON (TRANSPARENT OR CLEAR)
 (2A) (SUBSTRATE? OR SURFACE? OR BASE?)
 L3 52 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
 (LIGHT? OR PHOTON?) (S) PIXEL? (S) INCIDENT?
 L4 1081 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
 (LIGHT? OR PHOTON?) (S) PIXEL?
 L5 703 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
 (LIGHT? OR PHOTON?) (S) INCIDENT?
 L6 36059 SEA FILE=HCAPLUS ABB=ON PLU=ON (ROUGH OR IRREGULAR? OR
 BUMPY OR COARSE OR CONCAVE (2A) CONVEX OR GROOV? OR
 CORRUGAT? OR UNEVEN) (2A) (LAYER? OR SURFACE? OR FILM?
 OR SHEET?)
 L13 1 SEA FILE=WPIX ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR
 L5) AND L6
 L14 65 SEA FILE=WPIX ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4 OR
 L5)
 L15 7 SEA FILE=WPIX ABB=ON PLU=ON L14 AND (COLOUR? OR
 COLOR?) (3A) CONVER?
 L17 2 SEA FILE=WPIX ABB=ON PLU=ON L14 AND B32B00?/IC
 L18 30 SEA FILE=WPIX ABB=ON PLU=ON L14 AND G02B005-20/IC
 L19 1 SEA FILE=WPIX ABB=ON PLU=ON L14 AND G02B001-11/IC
 L20 11 SEA FILE=WPIX ABB=ON PLU=ON L14 AND H05B033?/IC
 L21 37 SEA FILE=WPIX ABB=ON PLU=ON L13 OR L15 OR L15 OR L17
 OR L18 OR L19 OR L20

=> file wpix

FILE 'WPIX' ENTERED AT 20:11:38 ON 27 SEP 2006
 COPYRIGHT (C) 2006 THE THOMSON CORPORATION

=> d l21 1-37 full

L21 ANSWER 1 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
 AN 2006-329317 [34] WPIX
 DNN N2006-278987 DNC C2006-108635
 TI Liquid crystal display device for, e.g. notebook computers, has
 transparent material and **light**-shielding layers formed
 corresponding to respective **pixel** regions and
light shielding regions, and **color filter**
layer on the transparent layer.
 DC A89 L03 P81 U14 W05
 IN KIM, C; LEE, J; KIM, C H; LEE, J J
 PA (GLDS) LG PHILIPS LCD CO LTD
 CYC 5
 PI US 2006092353 A1 20060504 (200634)* 14 G02F001-13
 FR 2877443 A1 20060505 (200634) G02F001-13
 GB 2420001 A 20060510 (200634) G02F001-13

DE 102005052515 A1 20060608 (200639) G02F001-13
 CN 1769973 A 20060510 (200657) G02F001-13

ADT US 2006092353 A1 US 2005-265272 20051103; FR 2877443 A1 FR
 2005-11235 20051104; GB 2420001 A GB 2005-22498 20051103; DE
 102005052515 A1 DE 2005-102005052515 20051103; CN 1769973 A CN
 2005-A112906 20051014

PRAI KR 2004-89308 20041104

IC ICM G02F001-13; G02F001-1333; G02F001-1335; G02F001-1368
 ICS G02B005-20; G02F001-1341; G02F001-1362; G09F009-35

AB US2006092353 A UPAB: 20060526

NOVELTY - Liquid crystal display (LCD) device comprises a first substrate with defined **pixel** regions and **light** shielding regions; a transparent material layer formed on the first substrate corresponding to the **pixel** regions; a **light**-shielding layer formed on the first substrate corresponding to the **light** shielding regions and adjacent to the transparent material layer; and a **color filter layer** on the transparent material layer.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for fabricating the above LCD device.

USE - For use in notebook computers, monitors, or aircraft.

ADVANTAGE - The transparent material is patterned on the substrate and the **light**-shielding regions are formed on the substrate, thus forming the **light**-shielding material in correspondence with the **light**-shielding areas and preventing the step coverage generated by the **light**-shielding patterns (120a). The **light**-shielding patterns are controlled with the transparent material patterning process. Each of the **light**-shielding patterns with uniform thickness, thus obtaining the high luminance.

DESCRIPTION OF DRAWING(S) - The figure is a cross sectional view of a color filter substrate.

Substrate 100
 Transparent material layer 110
 Light-shielding patterns 120a
 Common electrode 180
 Orientation layer 190

Dwg.3/5

TECH US 2006092353 A1UPTX: 20060526

TECHNOLOGY FOCUS - IMAGING AND COMMUNICATION - Preferred Parameter: Heights of the transparent material layer (110) and the **light**-shielding layer are the same. Preferred Component: The **color filter layer** overlaps with predetermined portions of the **light**-shielding layer adjacent to the transparent material layer. The LCD device includes a common electrode (180) over an entire surface of the first substrate including the **color filter layer**, an orientation layer (190) above the common electrode, an overcoat layer over an entire surface of the first substrate (100) including the **color filter layer**, an orientation layer on the overcoat layer, a second substrate opposite to the first substrate with a predetermined interval between the substrates, and a liquid crystal layer formed between the first and second substrates. The second substrate has a thin film transistor and a **pixel** electrode. The LCD device has a common electrode in parallel with the **pixel** electrode in each **pixel** region on the second substrate. Preferred Method: The **light**-shielding layer is formed by coating a **light**-shielding material on an entire surface of the substrate including the transparent material layer; and removing the coated **light**-shielding material from the portions other than the **light**-shielding region. A **light**-shielding material is coated using a spin coating method or a spinless coating method. A coated **light**-shielding material is removed from the portions other than the **light**-shielding region by scratching the **light**-shielding material on the transparent material layer with a

structure having a blade. The method includes ashing the light-shielding material with oxygen plasma or a light-irradiation lamp. The color filter layer is formed using a spinless coating method. TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The transparent material layer is formed of an acrylic resin.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-L03D; L03-G05B5; L03-G05B7A

EPI: U14-K01A1C; U14-K01A1J; U14-K01A2; W05-E05A

L21 ANSWER 2 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2006-310656 [33] WPIX

DNN N2006-263908

TI Color filter with color-conversion

function used in e.g. organic electroluminescent display, has color-conversion layer covering color-filter layer having different thicknesses, formed on substrate.

DC U14 W03 W04

IN KAWAMURA, Y

PA (FJIE) FUJI ELECTRIC CO LTD .

CYC 1

PI JP 2006107761 A 20060420 (200633)* 12 H05B033-12

ADT JP 2006107761 A JP 2004-288796 20040930

PRAI JP 2004-288796 20040930

IC ICM H05B033-12

ICS H01L051-50

AB JP2006107761 A UPAB: 20060523

NOVELTY - Color-filter layers

(2R,2G,2B) are provided on a transparent substrate

(1). A color-conversion layer (3) with a flat

surface, covers the color-filter layers

. The conversion layer absorbs a portion of the wavelength

range of an incident light and radiates

light of different wavelength. The color-

filter layers have different thicknesses.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for organic electroluminescent display.

USE - Color filter with color-

conversion function used in organic electroluminescent (EL)

display of word processor, image sensor, personal computer (PC),

television (TV), facsimile, audio equipment, car navigation

apparatus, electric table-top calculator, telephone, portable

terminal, industrial measuring device, etc. Also for use in liquid

crystal shutter, plasma display, light-emitting diode (LED), etc.

ADVANTAGE - The color-conversion function

is achieved using a simple structure consisting of a single

color-conversion layer. High-definition patterning

of the color-conversion layer is ensured.

DESCRIPTION OF DRAWING(S) - The figure shows a sectional view

explaining the manufacturing process of color filter with

color-conversion function.

substrate 1

color-filter layers 2R,2G,2B

color-conversion layer 3

gas barrier layer 4

Dwg.1/3

FS EPI

FA AB; GI

MC EPI: U14-J02; U14-J02C; U14-J02D2; W03-A08E1; W03-A08J; W04-M01C3

L21 ANSWER 3 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2006-289447 [30] WPIX

DNN N2006-246663 DNC C2006-094790

TI Optical filter for organic electroluminescent display, has

color-filter layer formed by using resin which has saturation water absorption less than or equal to specific value.

DC A14 A17 A21 A26 A89 L03 P81 U14 X26

IN BABA, Y

PA (NIPQ) DAINIPPON PRINTING CO LTD

CYC 1

PI JP 2006106448 A 20060420 (200630)* 14 G02B005-20 <--

ADT JP 2006106448 A JP 2004-294383 20041007

PRAI JP 2004-294383 20041007

IC ICM G02B005-20

ICS H01L051-50; H05B033-12

AB JP2006106448 A UPAB: 20060510

NOVELTY - A color-filter layer (2)

which carries out color correction of the incident light for each pixel, is laminated on a transparent substrate (1). A resin used as binder for forming color-filter layer has saturation water absorption less than or equal to 1.0 %.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for organic electroluminescent display.

USE - For organic electroluminescent (EL) display (claimed).

ADVANTAGE - The deterioration of the organic electroluminescent element is prevented, without providing barrier layer.

DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of the optical filter.

transparent substrate 1

color filter layer 2

black-matrix layer 3

protective layer 4

optical filter 5

Dwg.1/2

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-E11C; A12-L03D; L03-G02B; L03-G05F

EPI: U14-J02C; U14-J02D2; X26-D01C; X26-J

L21 ANSWER 4 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2006-160570 [17] WPIX

DNN N2006-138504 DNC C2006-053749

TI Manufacture of optical filter used in organic electroluminescent display, involves forming color filter layer on substrate, forming transparent gas barrier layer on color filter layer and forming transparent layer on gas barrier layer.

DC A14 A17 A21 A26 A89 L03 P81 U11 U14

IN BABA, Y

PA (NIPQ) DAINIPPON PRINTING CO LTD

CYC 1

PI JP 2006047689 A 20060216 (200617)* 17 G02B005-20 <--

ADT JP 2006047689 A JP 2004-228572 20040804

PRAI JP 2004-228572 20040804

IC ICM G02B005-20

ICS H01L051-50; H05B033-12

AB JP2006047689 A UPAB: 20060310

NOVELTY - Color filter layer (3) which carries out color correction of incident light for each pixel is formed on a transparent substrate (1). A transparent gas barrier layer (6) is formed on the color filter layer, by vacuum forming method. A transparent layer (7) is formed on the gas barrier layer by wet applying method, to obtain the optical filter (10).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for organic electroluminescent display.

USE - For manufacturing optical filter used in organic

electroluminescent display (claimed).

ADVANTAGE - The optical filter has improved gas barrier property and prevents deterioration and improves the reliability of organic electroluminescent display. Favorable image display without dark spot and dark area is enabled with organic electroluminescent display using the optical filter.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional drawing of the optical filter.

transparent substrate 1
black matrix layer 2
color filter layer 3
color conversion layer 4
gas barrier layer 6
transparent layer 7
optical filter 10

Dwg.2/3

TECH JP 2006047689 AUPTX: 20060310

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Layer: The gas barrier layer is nitridation silicon oxide film.

TECHNOLOGY FOCUS - POLYMERS - Preferred Layer: The transparent layer is layer of polyolefin type resin or norbornene type resin, or layer of organic-inorganic hybrid material containing polyimide resin, polyimidoamide resin, silicone resin, sol-gel resin containing polysiloxane oligomer, organic polymer and polysiloxane oligomer.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A11-B05D; A12-E11C; A12-L03D; L03-G02; L03-G05F

EPI: U11-C18D; U14-J02C; U14-J02D2

L21 ANSWER 5 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2006-060001 [07] WPIX

DNN N2006-051832 DNC C2006-022578

TI Photosensitive green composition for color filter, contains photoinitiator, monomer, resin and coloring agent, and forms dry paint film capable of forming pattern when exposed to ultraviolet ray via specific photomask.

DC A89 L03 P81 P84 U11 U14

IN YAMADA, K

PA (TOXW) TOYO INK MFG CO LTD

CYC 1

PI JP 2005345882 A 20051215 (200607)* 15 G03F007-004

ADT JP 2005345882 A JP 2004-167167 20040604

PRAI JP 2004-167167 20040604

IC ICM G03F007-004

ICS G02B005-20; G02F001-1335; G03F007-26

AB JP2005345882 A UPAB: 20060130

NOVELTY - A photosensitive green composition is applied and a dry paint film is formed. The film is exposed to ultraviolet ray by mercury lamp via photomask (A). Non-exposed portion is developed, and linear pattern (5) is formed. The film is further exposed via photomask (B). Width of linear pattern, width of linear die-opening mouth portion, diameter of hole and diameter of hole-type shading portion in photomask (A,B) satisfy preset relation.

DETAILED DESCRIPTION - A photosensitive green composition contains a photoinitiator, an ethylenically unsaturated monomer, an alkali soluble resin and a green coloring agent. A dry paint film is formed using the green composition. The dry paint film is exposed to ultraviolet ray having intensity of 150 mJ/cm² by ultrahigh pressure mercury lamp via a photomask (A). The non-exposed portion is developed, and linear pattern (5) having width of Wp is formed. The film is further exposed to ultraviolet ray having intensity of 150 mJ/cm² by ultrahigh pressure mercury lamp via a photomask (B). The photomask (A) has a shading portion (1) and linear die-opening mouth portion having width of W1 μ m. The photomask (B) has an opening (2) and hole-type shading portion having hole diameter of W2 μ m.

The diameter of hole contacting substrate (4) after developing non-exposed portion is set to Wh. The widths (Wp,W1) and diameters (Wh,W2) satisfy relation given by (μm) : -5 at most $(Wp-W1)+(Wh-W2)$ at most 5.

INDEPENDENT CLAIMS are included for the following:

(1) **color filter**, which has **coloring layer for light transmissive region** formed using the photosensitive green composition, a **green pixel containing coloring layer for light transmissive region and coloring layer for light reflection region**, and a **deletion portion** formed at **coloring layer for light reflection region**; and

(2) **manufacture of color filter**. The photosensitive green composition is applied on a **transparent substrate**, and dried to form a dry paint film. The film is exposed to ultraviolet ray through photomask having hole type shading portion with diameter of 5-10 μm , and opening with width of 10-200 μm . The non-exposed portion is developed, and package formation of coloring layer for light transmissive region and coloring layer for light reflection region is carried out to obtain color filter.

USE - For manufacture of color filter (claimed) used for semi-transmissive liquid crystal display device.

ADVANTAGE - Hole of fixed size is stably formed at **light reflection region of green pixel** using the photosensitive green composition. The liquid crystal display device having excellent display property is simply and economically manufactured using the **color filter** formed using the resin composition.

DESCRIPTION OF DRAWING(S) - The figure shows the relationship of width of linear die-opening mouth portion of photomask, and width of linear pattern formed at substrate.

shading portion of photomask 1

opening of photomask 2

substrate 4

linear pattern 5

Dwg.1/2

TECH JP 2005345882 AUPTX: 20060130

TECHNOLOGY FOCUS - POLYMERS - Preferred Composition: The weight ratio of photoinitiator and ethylenically unsaturated monomer is 0.2-0.5. The weight ratio of ethylenically unsaturated monomer and alkali soluble resin is 0.3-0.8. The weight ratio of coloring agent and ethylenically unsaturated monomer is 1-3.

ABEX JP 2005345882 AUPTX: 20060130

EXAMPLE - Cyclohexanone (in weight parts) (800) was added to a reaction container and heated at 100degreesC, and nitrogen gas was injected into the container. Styrene (60), methacrylic acid (60), methyl methacrylate (65), butyl methacrylate (65) and azobisisobutyronitrile were mixed and dripped for 1 hour, and reacted at 100degreesC for 3 hours. Azobisisobutyronitrile (2) was dissolved and reaction was continued for 1 hour. A resin solution was obtained. The resin solution was cooled and heat-dried at 180degreesC for 20 minutes. Cyclohexanone was added, and acrylic resin solution having non-volatile substance content of 20% was obtained. The acrylic resin had weight average molecular weight of 40000. C.I. Pigment Green 36 (4), C.I. Pigment Yellow 150 (1.07), and Disperbyk-161 (RTM: dispersant) (0.04) were mixed with the obtained acrylic resin solution (35.85). 2-methyl-1-(4-(methyl thio) phenyl)-2-morpholino propane-1-one and isopropyl thioxanthone in weight ratio of 60/40 were added and mixed. Dipentaerythritol hexa acrylate was added and mixed to obtain a photosensitive green composition. A color filter was manufactured using the photosensitive green composition. A liquid crystal display was manufactured using the color filter. The liquid crystal display had high display quality.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A08-C01; A08-C07; A11-B05D; A11-C02B; A11-C04D; A12-L02C;
A12-L03D; L03-G02B; L03-G05B7A
EPI: U11-A06A; U14-K01A1C

L21 ANSWER 6 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2006-033942 [04] WPIX

DNN N2006-029102 DNC C2006-012368

TI Photosensitive red composition for color filter, contains photoinitiator, monomer, resin and coloring agent, and forms dry paint film capable of forming pattern when exposed to ultraviolet ray via specific photomask.

DC A89 G06 L03 P81 P84 P85 U11 U14 W05

IN YAMADA, K

PA (TOXW) TOYO INK MFG CO LTD

CYC 1

PI JP 2005345883 A 20051215 (200604)* 14 G03F007-004

ADT JP 2005345883 A JP 2004-167168 20040604

PRAI JP 2004-167168 20040604

IC ICM G03F007-004

ICS G02B005-20; G02F001-1335; G03F007-26; G09F009-30

AB JP2005345883 A UPAB: 20060116

NOVELTY - A photosensitive red composition is applied and a dry paint film is formed. The film is exposed to ultraviolet ray by mercury lamp via photomask (A). Non-exposed portion is developed, and linear pattern (5) is formed. The film is further exposed via photomask (B). Width of linear pattern, width of linear die-opening mouth portion, diameter of hole and diameter of hole-type shading portion in photomask (A,B) satisfy preset relation.

DETAILED DESCRIPTION - A photosensitive red composition contains a photoinitiator, an ethylenically unsaturated monomer, an alkali soluble resin and a red coloring agent. A dry paint film is formed using the red composition. The dry paint film is exposed to ultraviolet ray having intensity of 100 mJ/cm² by ultrahigh pressure mercury lamp via a photomask (A). The non-exposed portion is developed, and linear pattern (5) having width of W_p is formed. The film is further exposed to ultraviolet ray having intensity of 100 mJ/cm² by ultrahigh pressure mercury lamp via a photomask (B). The photomask (A) has a shading portion (1) and linear die-opening mouth portion having width of W₁ μm. The photomask (B) has an opening (2) and hole-type shading portion having diameter of W₂ μm. The diameter of hole contacting substrate (4) after developing non-exposed portion is set to W_h. The widths (W_p, W₁) and diameters (W_h, W₂) satisfy relation given by (μm): -5 at most (W_p-W₁)+(W_h-W₂) at most 5. INDEPENDENT CLAIMS are included for the following:

(1) color filter, which has coloring layer for light transmissive region formed using the photosensitive red composition, a red pixel containing coloring layer for light transmissive region and coloring layer for light reflection region, and a deletion portion formed at coloring layer for light reflection region; and

(2) manufacture of color filter. The photosensitive red composition is applied on a transparent substrate, and dried to form a dry paint film. The film is exposed to ultraviolet ray through photomask having hole type shading portion with diameter of 5-10 μm, and opening with width of 10-200 μm. The non-exposed portion is developed, and package formation of coloring layer for light transmissive region and coloring layer for light reflection region is carried out to obtain color filter.

USE - For manufacture of color filter (claimed) used for semi-transmissive liquid crystal display device.

ADVANTAGE - Hole of fixed size is stably formed at light reflection region of red pixel using the photosensitive red composition. The liquid crystal display device having excellent display property is simply and economically

manufactured using the color filter formed using the resin composition.

DESCRIPTION OF DRAWING(S) - The figure shows the relationship of width of linear die-opening mouth portion of photomask, and width of linear pattern formed at substrate.

shading portion of photomask 1

opening of photomask 2

substrate 4

linear pattern 5

Dwg.1/2

TECH JP 2005345883 AUPTX: 20060116

TECHNOLOGY FOCUS - POLYMERS - Preferred Composition: The weight ratio of photoinitiator and ethylenically unsaturated monomer is 0.05-0.2. The weight ratio of ethylenically unsaturated monomer and alkali soluble resin is 0.2-1.

ABEX JP 2005345883 AUPTX: 20060116

EXAMPLE - Cyclohexanone (in weight parts) (800) was added to a reaction container and heated at 100degreesC, and nitrogen gas was injected into the container. Styrene (60), methacrylic acid (60), methyl methacrylate (65), butyl methacrylate (65) and azobisisobutyronitrile were mixed and dripped for 1 hour, and reacted at 100degreesC for 3 hours. Azobisisobutyronitrile (2) was dissolved and reaction was continued for 1 hour. A resin solution was obtained. The resin solution was cooled and heat-dried at 180degreesC for 20 minutes. Cyclohexanone was added, and acrylic resin solution having non-volatile substance content of 20% was obtained. The acrylic resin had weight average molecular weight of 40000. C.I. Pigment Red 254 (3.02), C.I. Pigment Yellow 150 (2.51), and Disperbyk-161 (dispersant) (0.02) were mixed with the obtained acrylic resin solution. 2-methyl-1-(4-(methyl thio) phenyl)-2-morpholino propane-1-one and isopropyl thioxanthone in weight ratio of 60/40 were added and mixed. Dipentaerythritol hexa acrylate and trimethylol-propane triacrylate in weight ratio of 60/40 was added and mixed to obtain a photosensitive red composition. A color filter was manufactured using the photosensitive red composition. A liquid crystal display was manufactured using the color filter. The liquid crystal display had high display quality.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A08-C01; A08-C07; A11-C02B; A12-L02B2; A12-L03B; A12-L03D; G06-D06B; G06-E02; G06-E04; G06-F03B; G06-F03C; G06-F03D; G06-G17; G06-G18; L03-G02B; L03-G05B7A
EPI: U11-A06A; U14-K01A1C; W05-E05B5

L21 ANSWER 7 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2005-160357 [17] WPIX

DNN N2005-134506

TI Full color display panel and color-separating substrate thereof.

DC P81 P85 U14

IN CHEN, C; LIAO, C; LU, T; LU, T R

PA (RITD-N) RITDISPLAY CORP; (CHEN-I) CHEN C; (LIAO-I) LIAO C; (LUTR-I) LU T R

CYC 2

PI TW 586098 A 20040501 (200517)* G09F009-30

US 2005001544 A1 20050106 (200517) H05B033-00 <--

TW 2004026732 A 20041201 (200612) G09F009-30

US 7057341 B2 20060606 (200638) H01J001-00

ADT TW 586098 A TW 2003-114471 20030528; US 2005001544 A1 US 2004-854177 20040527; TW 2004026732 A TW 2003-114471 20030528; US 7057341 B2 US 2004-854177 20040527

PRAI TW 2003-114471 20030528

IC ICM G09F009-30; H01J001-00; H01J001-62; H05B033-00

ICS G02F001-13; H01J063-00; H01J063-04; H05B033-04

AB TW 586098 A UPAB: 20050311

NOVELTY - A full color display panel comprises an organic

light-emitting area, a spectrum-modulation layer, a color-separating layer and a transparent substrate. In this invention, the organic light-emitting area includes a plurality of pixels and emits a white light. The spectrum-modulation layer is doped with a fluorescent material and/or a phosphorescent material in a transparent protecting medium. The color-separating layer includes a light-shielding frame and a plurality of color filters. The light-shielding frame is set around the peripheral of the color filters. The color-separating layer is set on the transparent substrate. The spectrum-modulation layer is set above the color-separating layer. The organic light-emitting area is above the spectrum-modulation layer.

Dwg.0/1

FS EPI GMPI

FA AB

MC EPI: U14-J02C; U14-J02D2

L21 ANSWER 8 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2005-056766 [06] WPIX

DNN N2005-049316 DNC C2005-019374

TI Full color display panel with mirror function for organic electro luminescent displays has spectrum modulation layer and semi-reflecting layer.

DC A85 L03 P85 U14

IN CHEN, C; CHIU, J; LU, T; YANG, K; LU, T R

PA (RITD-N) RITDISPLAY CORP; (CHEN-I) CHEN C; (CHIU-I) CHIU J; (LUTR-I) LU T R; (YANG-I) YANG K

CYC 2

PI US 2004251824 A1 20041216 (200506)* 13 H05B033-00 <--

TW 591567 A 20040611 (200506) G09F009-30

TW 2004028313 A 20041216 (200612) G09F009-30

US 7067975 B2 20060627 (200643) H01J001-00

ADT US 2004251824 A1 US 2004-859206 20040603; TW 591567 A TW 2003-115768 20030610; TW 2004028313 A TW 2003-115768 20030610; US 7067975 B2 US 2004-859206 20040603

PRAI TW 2003-115768 20030610

IC ICM G09F009-30; H01J001-00; H01J001-62; H05B033-00

AB US2004251824 A UPAB: 20050126

NOVELTY - A full color display panel with mirror function comprises organic light-emitting area, spectrum modulation layer, color-separating layer, transparent substrate, and semi-reflecting layer. The organic light emitting area comprises pixels for emitting white light. The spectrum-modulating layer comprises transparent protecting medium doped with fluorescent material and/or phosphorescent material. The color-separating layer comprises color filters.

DETAILED DESCRIPTION - A full color display panel with mirror function

(1) comprises organic light-emitting area (11), spectrum modulation layer (12), color-separating layer (13), transparent substrate (14), and semi-reflecting layer (15). The organic light emitting area comprises pixels for emitting white light. The spectrum-modulating layer comprises transparent protecting medium doped with fluorescent material and/or phosphorescent material. The color-separating layer comprises color filters (132) surrounded with light shielding frame (131). The substrate has two surfaces. The color separating layer is above the first surface of the substrate. The spectrum-modulating layer is above the color-separating layer. The organic light emitting area is above the spectrum modulation layer. The semi reflecting layer is on the second surface of the substrate or between the first

surface of transparent substrate and color separating layer.

USE - For organic electro luminescent displays.

ADVANTAGE - The invention improves purity of white light emitted from organic light-emitting area or to translate the short wavelength ultraviolet or blue light emitted from organic light emitting area into white light to enhance the luminescent efficiency of the organic light emitting area. It provides white light with uniform and broadband radiation spectrum. It has reduced panel thickness. It simplifies manufacturing process, thus reducing costs while increasing manufacturing yield. It can increase the viewing angle.

DESCRIPTION OF DRAWING(S) - The figure shows a schematic view of the full color display panel with mirror function.

Mirror function 1

Organic light-emitting area 11

Spectrum modulation layer 12

Color-separating layer 13

Transparent substrate 14

Semi-reflecting layer 15

First electrode 111

Organic functional layer 112

Second electrode 113

Light shielding frame 131

Color filters 132

First and second surfaces 141, 142

Red filter(s) 1321

Blue filter(s) 1322

Green filter(s) 1323

Dwg.3/7

TECH US 2004251824 A1UPTX: 20050126

TECHNOLOGY FOCUS - IMAGING AND COMMUNICATION - Preferred Components:

The panel also comprises insulating layer between spectrum-modulation layer and organic light emitting area. The pixel comprises first electrode (111), organic functional layer (112), and second electrode (113). The first electrode is above the spectrum-modulation layer. The second electrode is on the first electrode. The organic functional layer is between the two electrodes. The panel also comprises pixel defining layer. The pixel defining layer is on the first electrode and/or the transparent substrate to define pixels in the organic light emitting area. The color filters correspond to the pixels of the organic light emitting area. The material of the protecting medium is polymethyl methacrylate, tetrafluoroethylene resin, silicon resin, and/or silicon dioxide. The fluorescent material is mixed with red fluorescent powder, green fluorescent powder, and/or blue fluorescent powder. The phosphorescent material is mixed with red phosphorescent powder, green phosphorescent powder, and/or blue phosphorescent powder. The color filters comprise red filter(s) (1321), blue filter(s) (1322), and green filter(s) (1323). The material of semi-reflecting layer comprises metal or dielectric material. The short wavelength light emitted from the pixels of the organic light emitting area is ultraviolet light or blue light. The protecting medium is adhesive or waterproof for attaching with a cover plate. The material of semi-reflecting layer comprises metal or dielectric material. Preferred Properties: The semi-reflecting layer has radiation transmittance of 10-90%.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-E11C; L03-G05F

EPI: U14-J02A; U14-J02C; U14-J02D2; X26-J

L21 ANSWER 9 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2005-050907 [06] WPIX

DNN N2005-044533 DNC C2005-017989

TI Color filter for liquid crystal display, has coloring pixel layer of red, green and blue having preset chromaticity points, on **transparent substrate**, and black matrix having metal microparticle, at interval of each coloring pixel.

DC G06 P81 P84 U14

PA (FUJF) FUJI PHOTO FILM CO LTD

CYC 1

PI JP 2004347831 A 20041209 (200506)* 19 G02B005-20 <--

ADT JP 2004347831 A JP 2003-144336 20030522

PRAI JP 2003-144336 20030522

IC ICM G02B005-20

ICS G02F001-1335; G03F007-004

AB JP2004347831 A UPAB: 20050126

NOVELTY - A **color filter** has **coloring pixel layer** of red, green and blue on **transparent substrate**, and black matrix having metal microparticle at interval of each **coloring pixel**. Chromaticity points (x,y) of red (R), green (G) and blue (B) existing in **pixel layer** by **C light** source in CIE chromaticity diagram is 0.62 or more and 0.35 or less, 0.32 or less and 0.56 or more, and 0.17 or less and 0.14 or less, respectively.

USE - For liquid crystal display.

ADVANTAGE - The color filter has excellent display contrast, high color purity and high permeability rate.

Dwg.0/0

TECH JP 2004347831 AUPTX: 20050126

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Microparticle: The metal microparticle is silver microparticle having average particle diameter of 60-250 nm. Preferred Matrix: The black matrix is formed using a photosensitive composition or photosensitive transfer material containing metal microparticle.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Pixel: The red pixel contains C.I.Pigment Red-254. The green pixel contains C.I.Pigment Green-36, C.I.Pigment Yellow-138, C.I.Pigment Yellow-139 and/or C.I.Pigment Yellow-150. The blue pixel contains C.I.Pigment Blue-15.

FS CPI EPI GMP

FA AB

MC CPI: G06-D06B

EPI: U14-K01A1C

L21 ANSWER 10 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2004-698106 [68] WPIX

CR 2006-443585 [45]; 2006-443586 [45]

DNN N2004-553511 DNC C2004-246911

TI Electroluminescent display device includes front substrate coupled with rear substrate and having patterned conductive black matrix layer facing second electrode layer on rear substrate.

DC L03 T04 U14

IN PARK, J U; KOO, J B; LEE, G H; KOO, J; LEE, K; PARK, J

PA (SMSU) SAMSUNG SDI CO LTD; (SMSU) SAMSUNG DENKAN KK; (KOOJ-I) KOO J; (LEEK-I) LEE K; (PARK-I) PARK J

CYC 4

PI US 2004185604 A1 20040923 (200468)* 18 H01L029-04

JP 2004281399 A 20041007 (200468) 17 H05B033-26 <--

KR 2004080729 A 20040920 (200508) H05B033-26 <--

CN 1543269 A 20041103 (200514) H05B033-00 <--

KR 2004094057 A 20041109 (200519) H05B033-26 <--

US 7026658 B2 20060411 (200626) H01L029-02

ADT US 2004185604 A1 US 2004-766913 20040130; JP 2004281399 A JP 2004-69811 20040311; KR 2004080729 A KR 2003-15686 20030313; CN 1543269 A CN 2004-10004188 20040213; KR 2004094057 A KR 2003-27991 20030501; US 7026658 B2 US 2004-766913 20040130

PRAI KR 2003-27991 20030501; KR 2003-15686 20030313
 IC ICM H01L029-02; H01L029-04; H01L029-22; H05B033-00;
 H05B033-26
 ICS H01L031-36; H05B033-02; H05B033-12;
 H05B033-14

AB US2004185604 A UPAB: 20060727

NOVELTY - An electroluminescent display device (200) includes a front substrate coupled with a rear substrate. The front substrate has a patterned conductive black matrix layer (230) formed on a lower surface of the front substrate. The patterned black matrix layer faces a second electrode layer on the rear substrate.

DETAILED DESCRIPTION - An electroluminescent display device comprises a rear substrate (201) having a first electrode layer (214), a light-emitting layer (213) and a second electrode layer (211) sequentially formed on an upper surface of the rear substrate. A front substrate (202) is coupled with the rear substrate and has a patterned conductive black matrix layer formed on a lower surface (271) of the front substrate. The patterned black matrix layer faces the second electrode layer on the rear substrate. Conductive connecting members are located between the second electrode layer and the black matrix layer. They connect the second electrode layer to the patterned black matrix layer.

USE - Used as an electroluminescent display device.

ADVANTAGE - The display device has a small voltage drop of a cathode, no external light reflection, and high contrast and luminance. It has a large screen where the electrode on the front side allows the light to pass while not causing any infrared voltage drops thus resulting in large screen having uniform luminance distribution. It has no color blurring, high-definition image, and high opening ratio.

DESCRIPTION OF DRAWING(S) - The figure is a sectional view of an active matrix electroluminescent display device.

Electroluminescent display device 200

Rear substrate 201

Front substrate 202

Second electrode layer 211

Light-emitting layer 213

First electrode layer 214

Black matrix layer 230

Conductive spacer 240

Lower surface 271

Dwg.4/10

TECH US 2004185604 A1UPTX: 20041026

TECHNOLOGY FOCUS - IMAGING AND COMMUNICATION - Preferred Device: The connecting members are conductive spacers between the second electrode layer and the patterned black matrix layer. The connecting members are protrusions protruding from the black matrix layer. The display device includes a transparent filler material between joining connecting members, a color filter

layer formed on a same level as the patterned black matrix layer, and a functional thin film formed between the second electrode layer and the front substrate. The

transparent filler material is located between the second electrode layer and the black matrix layer. It is rigid and stable to prevent the connecting members from moving. The black matrix layer is connected to the second electrode layer without voltage drop. It is patterned to minimize the inhibition of passage of radiation generated in the light-emitting layer from going through the front substrate. The display is a front emitting structure. The second electrode layer is transparent and conductive. The functional thin film has a conductive material contacting the second electrode layer. It comprises first transparent and second metal ingredients sequentially stacked on the front substrate. As the distance from the front substrate increases within the functional thin film, the concentration of the first ingredient decreases and the concentration of the second ingredient increases.

The functional thin film comprises a first thin film of chromium oxides (CrOx) on the front substrate and a second thin film of chromium and located on the first thin film. It absorbs incident light from an outside of the display that impinges on the front substrate. It is perforated by openings corresponding to a predetermined pixel pattern of a light-emitting area. The openings of the functional thin film are patterned in the form of dots or stripes. The connecting members, e.g. conductive spacer (240) or conductive paste are interposed between the functional thin film and the second electrode layer. Preferred Parameter: The connecting members have a height of 2-30 microns.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The outer surface of the conductive spacers is coated with metal. The connecting members are made of nickel (Ni), aluminum (Al), silver (Ag), gold (Au), or copper (Cu). The light-emitting layer is inorganic. The first ingredient is a transparent insulating material of silicon oxide (SiOx, where x is greater than or equal to 1), silicon nitrides (SiNx), magnesium fluoride (MgF2), calcium fluoride (CaF2), aluminum oxide (Al2O3), or tin oxide (SnO2). It can be a transparent conductive material of indium tin oxide (ITO), indium zinc oxide (IZO), zinc oxide (ZnO), or indium oxide (In2O3). The second ingredient is iron (Fe), cobalt (Co), vanadium (V), titanium (Ti), Al, Ag, silicon (Si), germanium (Ge), yttrium (Y), zinc (Zn), zirconium (Zr), tungsten (W), tantalum (Ta), Cu, or platinum (Pt).

TECHNOLOGY FOCUS - METALLURGY - Preferred Material: The connecting members can be alloy of Ni, Al, Ag, Au, or Cu.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Material: The outer surface of the conductive spacers is coated with metal. The connecting members are made of nickel (Ni), aluminum (Al), silver (Ag), gold (Au), or copper (Cu). The light-emitting layer is inorganic. The first ingredient is a transparent insulating material of silicon oxide (SiOx, where x is greater than or equal to 1), silicon nitrides (SiNx), magnesium fluoride (MgF2), calcium fluoride (CaF2), aluminum oxide (Al2O3), or tin oxide (SnO2). It can be a transparent conductive material of indium tin oxide (ITO), indium zinc oxide (IZO), zinc oxide (ZnO), or indium oxide (In2O3). The second ingredient is iron (Fe), cobalt (Co), vanadium (V), titanium (Ti), Al, Ag, silicon (Si), germanium (Ge), yttrium (Y), zinc (Zn), zirconium (Zr), tungsten (W), tantalum (Ta), Cu, or platinum (Pt).

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Material: The light-emitting layer can be organic.

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: An interior portion of the conductive spacers is polymer particle.

FS CPI EPI

FA AB; GI

MC CPI: L03-G05F

EPI: T04-H03C3; T04-L05; U14-J01; U14-J02A

L21 ANSWER 11 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2004-657956 [64] WPIX

DNN N2004-520880

TI Optical filter for organic electroluminescent display, has rough surface with several grooves of pitch less than wavelength of light, formed on color filter layer.

DC P81 U14 X26

IN ASANO, M; BABA, Y

PA (NIPQ) DAINIPPON PRINTING CO LTD; (ASAN-I) ASANO M; (BABA-I) BABA Y

CYC 2

PI JP 2004258586 A 20040916 (200464)* 20 G02B005-20 <--

US 2004253413 A1 20041216 (200482) B32B001-00 <--
 ADT JP 2004258586 A JP 2003-52204 20030228; US 2004253413 A1 US
 2004-785489 20040224
 PRAI JP 2003-52204 20030228
 IC ICM B32B001-00; G02B005-20
 ICS G02B001-11; H05B033-02; H05B033-12
 ; H05B033-14
 AB JP2004258586 A UPAB: 20041006
 NOVELTY - A color filter layer (13)
 which is stacked on transparent substrate (11)
 carries out color correction of incident
 light for each pixel on the substrate. A
 rough surface (14) formed on the color
 filter layer, has several grooves of
 pitch less than the wavelength of the light.
 DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included
 for organic electroluminescent display.
 USE - For organic electroluminescent (EL) display (claimed).
 ADVANTAGE - Provides filter with high irradiation efficiency of
 incident light from rough surface.
 DESCRIPTION OF DRAWING(S) - The figure shows a sectional view
 of the optical filter and organic electroluminescent display.
 (Drawing includes non-English language text).
 optical filter 10
 transparent substrate 11
 color filter layer 13
 rough surface 14
 organic electroluminescent element 20
 Dwg.1/6
 FS EPI GMPI
 FA AB; GI
 MC EPI: U14-J02; X26-J

L21 ANSWER 12 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
 AN 2004-444857 [42] WPIX
 DNN N2004-351814
 TI Color-conversion element for electroluminescent
 display, has color filter layer formed
 between array of color-conversion layer and
 transparent base material.
 DC P81 U14 V07 X26
 IN ARAI, K; ASANO, M
 PA (NIPQ) DAINIPPON PRINTING CO LTD; (ARAI-I) ARAI K; (ASAN-I) ASANO M
 CYC 2
 PI JP 2004152749 A 20040527 (200442)* 17 H05B033-12 <--
 US 2004233139 A1 20041125 (200478) G09G003-30
 ADT JP 2004152749 A JP 2003-348687 20031007; US 2004233139 A1 US
 2003-680082 20031007
 PRAI JP 2002-294611 20021008
 IC ICM G09G003-30; H05B033-12
 ICS G02B005-20; G09G003-12; H01J001-62;
 H05B033-10; H05B033-14
 AB JP2004152749 A UPAB: 20040702
 NOVELTY - A color-conversion layer (4)
 converts the color pixel of
 incident light into different colors of
 emitted light, for forming array of color-
 conversion layer on a transparent base
 material (1). A color filter layer (3)
 is formed between the array of color-conversion
 layer and the transparent base material.
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for
 the following:
 (1) electroluminescent display;
 (2) color-conversion element manufacturing
 method; and

(3) electroluminescent display manufacturing method.
 USE - For electroluminescent (EL) display (claimed).
 ADVANTAGE - Improves the color rendering properties of EL display, thereby preventing outdoor day light reflection.
 DESCRIPTION OF DRAWING(S) - The figure shows an explanatory view of the **color-conversion** element.

transparent base material 1
 black matrix 2
color filter layer 3
color-conversion layer 4

Dwg.1/2

FS EPI GMPI

FA AB; GI

MC EPI: U14-J01; U14-J02; V07-F02B; X26-J

L21 ANSWER 13 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2004-150803 [15] WPIX

DNN N2004-120360

TI Organic electroluminescent image display device has organic spacers arranged between **color-conversion** phosphor layers, corresponding to **pixel**, with specific percentage of **light** reflex rate.

DC U14 X26

PA (NIPQ) DAINIPPON PRINTING CO LTD

CYC 1

PI JP 2004039580 A 20040205 (200415)* 16 H05B033-22 <--

ADT JP 2004039580 A JP 2002-198141 20020708

PRAI JP 2002-198141 20020708

IC ICM H05B033-22

ICS H05B033-12; H05B033-14

AB JP2004039580 A UPAB: 20040302

NOVELTY - A **color-filter**, **color-conversion** phosphor, transparent-protective and transparent-electrode layers (4-6,8), an organic electroluminescence element and back electrode layers (10,11) are provided in order, on a base layer (2). Spacers (9) in between **color-conversion** phosphor layers, corresponding to **pixel**, has 50% or more **light** reflex rate.

USE - Organic electroluminescent image display device.

ADVANTAGE - Light emission luminance is increased and high quality image is obtained.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of the organic electroluminescent image display device.

transparent base material 2
color-filter layer 4
color-conversion phosphor layer 5
 transparent-protective layer 6
 transparent-electrode layer 8
 obstruction 9
 organic electroluminescence element layer 10
 back electrode layer 11

Dwg.3/6

FS EPI

FA AB; GI

MC EPI: U14-K01A1C; X26-J

L21 ANSWER 14 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2004-150802 [15] WPIX

DNN N2004-120359

TI Organic electroluminescent image display device has transparent protective layer provided with convex-shaped lenticular lens element, so that convex-shaped surface is arranged corresponding to pixel array.

DC U14 X26

PA (NIPQ) DAINIPPON PRINTING CO LTD

CYC 1

PI JP 2004039579 A 20040205 (200415)* 17 H05B033-02 <--
 ADT JP 2004039579 A JP 2002-198140 20020708
 PRAI JP 2002-198140 20020708
 IC ICM H05B033-02
 ICS H05B033-12; H05B033-14
 AB JP2004039579 A UPAB: 20040302
 NOVELTY - A transparent protective layer (6) is provided with a convex-shaped lenticular lens element (6a), so that the convex-shaped surface is arranged corresponding to a pixel array.
 USE - Organic electroluminescent image display device.
 ADVANTAGE - Prevents irradiation of color conversion phosphor layer of adjacent pixel, by providing a lenticular lens in the transparent protective layer to condense light irradiated in all directions. Enhances color purity of pixel. Utilizes light emitted from organic layer effectively to increase the brightness level. Increases image display quality.
 DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of the organic electroluminescent image display device.
 EL display device 1
 transparent base 2
 black matrix 3
 color filter layer 4
 coloring layer 4G
 transparent protective layer 6
 lenticular lens element 6a
 transparent electrode layer 8
 Dwg. 2/6
 FS EPI
 FA AB; GI
 MC EPI: U14-K01A1C; X26-J

L21 ANSWER 15 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
 AN 2004-112394 [12] WPIX
 DNN N2005-643874 DNC C2005-239138
 TI Manufacture of multi-colored image sheet for color filter, involves forming black matrix by laminating photosensitive black resin layer on surface of color pixel on transparent base, and hardening resin layer.
 DC A32 A89 G07 L03 P81 P84 U11 U14
 PA (FUJF) FUJIFILM PHOTO FILM CO LTD
 CYC 1
 PI JP 2003139938 A 20030514 (200412)* 17 G02B005-20 <--
 ADT JP 2003139938 A JP 2001-341828 20011107
 PRAI JP 2001-341828 20011107
 IC ICM G02B005-20
 ICS G02F001-1335; G03F007-004; G03F007-038; G03F007-38
 AB JP2003139938 A UPAB: 20051213
 NOVELTY - A photosensitive black resin layer (12) containing alkaline-soluble binder, photoacid generator and/or cross-linking agent cross-linked by action of acid generator, and coloring agent, is laminated on surface of colored pixel (R,G,B) on transparent base (10), and black matrix (12a) is formed. The resin layer is then hardened to obtain multi-colored image sheet.
 DETAILED DESCRIPTION - A photosensitive black resin layer containing an alkaline-soluble binder, a photoacid generator and a cross-linking agent cross-linked by the action of the photoacid generator, and a coloring agent, is laminated on the surface of a colored pixel provided on a transparent base material, and a black matrix is formed. The base side portion of the resin layer is hardened by irradiating the base with light. The resin layer is then hardened by irradiating light, to obtain the multi-colored image sheet. INDEPENDENT CLAIMS are also included for the following:

- (1) multi-colored image sheet; and
- (2) color filter.

USE - For manufacturing multi-colored image sheet for color filter (both claimed) and liquid crystal color display.

ADVANTAGE - The manufacturing method provides multi-colored image sheet with black matrix which has spacer and black functions, and easily forms uniform liquid-crystal layer. The multi-colored image sheet has high optical density, and provides color filter with excellent color uniformity and display quality, and no brightness irregularity. The manufacture of color filter is simple and accurate.

DESCRIPTION OF DRAWING(S) - The figure shows the process drawing of the manufacture of color filter.

base 10

photosensitive black resin layer 12

black matrix 12a

colored pixels R,G,B

Dwg.1/2

TECH JP 2003139938 AUPTX: 20040520

TECHNOLOGY FOCUS - POLYMERS - Preferred Binder: The alkaline-soluble binder is copolymer of methyl methacrylate or benzyl methacrylate.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Agent: The cross-linking agent is melamine resin or urea resin.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A08-D; A11-C02; A12-L02B2; A12-L03B; A12-L03D; G06-A06;

G06-D06; G06-F03C; G06-F03D; L03-G02B; L03-G05B

EPI: U11-A06A; U11-C18D; U14-K01A1C

L21 ANSWER 16 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2004-088729 [09] WPIX

DNN N2004-071037 DNC C2004-036057

TI Multicolor pixel sheet producing method for color filter in liquid crystal display, involves exposing photosensitive black resin layer to light from substrate and layer sides to cure layer.

DC A89 P75 P81 P84 T04 U14

IN SATO, M

PA (FUJF) FUJI PHOTO FILM CO LTD

CYC 2

PI US 2003072017 A1 20030417 (200409)* 10 B41J001-00

JP 2003084117 A 20030319 (200409) 10 G02B005-20 <--

ADT US 2003072017 A1 US 2002-237029 20020909; JP 2003084117 A JP 2001-274783 20010911

PRAI JP 2001-274783 20010911

IC ICM B41J001-00; G02B005-20

ICS G02F001-1335; G02F001-1339; G03F007-004; G06F015-00

AB US2003072017 A UPAB: 20040205

NOVELTY - A photosensitive black resin layer (12) is provided on a transparent substrate (10) having a pixel sheet in which pixels of different colors are formed with gaps between them. The sheet is exposed to light from substrate and layer sides to cure the layer at gaps and at outer periphery defined by outermost pixels. The exposed sheet is developed to remove uncured portions and heated.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for color filter.

USE - For producing multicolor pixel sheet for color filter having black matrix used in liquid crystal display.

ADVANTAGE - By exposing the photosensitive black resin layer to light from substrate and resin layer sides and by developing the resin layer, a black matrix which shields light and serves as the spacer can be produced in a simplified and accurate manner.

DESCRIPTION OF DRAWING(S) - The figures show the cross-sectional views of the multicolor pixel sheet.

transparent substrate 10
photosensitive black resin layer 12
1B, 1C/2

TECH US 2003072017 A1UPTX: 20040205

TECHNOLOGY FOCUS - POLYMERS - The photosensitive black resin layer includes resin composition that includes alkali-soluble binder polymer, addition-polymerizable monomer and alkali-soluble binder polymer.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A11-C02B; A12-L03B

EPI: T04-H03C2; U14-K01A1C

L21 ANSWER 17 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2003-247163 [24] WPIX

CR 2002-607205 [65]

DNN N2003-196405 DNC C2003-063549

TI Color filter for liquid crystal display, comprises

transparent substrate, color

filtering layer and wavelength converting layer

that produces emergent light of specific wavelength, in response to incident light of lower wavelength.

DC E24 L03 P81 U14 V07

IN SEKIGUCHI, S; TANAKA, J

PA (HITA) HITACHI LTD

CYC 1

PI US 2002150826 A1 20021017 (200324)* 22 G02F001-1335

US 6670083 B2 20031230 (200402) G02B005-20 <--

ADT US 2002150826 A1 Div ex US 2001-964976 20010926, US 2002-160228

20020528; US 6670083 B2 Div ex US 2001-964976 20010926, US

2002-160228 20020528

PRAI JP 2000-379761 20001208

IC ICM G02B005-20; G02F001-1335

ICS G02B005-20

AB US2002150826 A UPAB: 20040107

NOVELTY - Color filter, with laminated structure, comprises:

(1) transparent substrate layer;

(2) color filtering layer with

several substantially coplanar color filtering segments; and

(3) wavelength (λ) converting layer, co-extensive with

(2), containing single type of material that produces emergent light

(11) with λ range greater than predetermined λ in response

to receiving incident light (5) with λ less than predetermined

λ .

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for liquid crystal display that comprises a pair of glass substrates, a liquid crystal layer between the substrates, a layer of transistor elements disposed between the substrates and the color filter layer, also between the substrates.

USE - For liquid crystal display.

ADVANTAGE - The liquid crystal display has a high light transmittance and good display characteristics can be obtained effectively. The brightness of the display device can be improved without loss in color impurity.

DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of the color filter.

incident light 5

emergent light 11

Dwg.2/12

TECH US 2002150826 A1UPTX: 20030410

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Wavelength: The predetermined wavelength is preferably 420 nm.

ABEX US 2002150826 A1UPTX: 20030410

SPECIFIC COMPOUNDS - Specific Compounds: The wavelength converting

organic material is selected from perylene, 7-di-methylamino-4-methylcoumarin, 7-hydroxy-4-methylcoumarin, 1,4-bis(4-methyl-5-phenylxazol-2-yl) benzene and 7-dimethylamino-4-methyl-2-hydroxyquinoline.

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: E24-A04B; E24-A04C; E24-A05; L03-G02B; L03-G05B

EPI: U14-K01A1C; V07-F02B

L21 ANSWER 18 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2002-559795 [60] WPIX

CR 2003-790412 [75]

DNN N2002-443158

TI Color transreflective LCD e.g. for office automation equipment comprises color corresponding multiple sub-pixels with color filter and pigment layers with transmissive area dependent on spectral properties..

DC P81 U14 W05

IN IISHIMA, C; IIJIMA, C; ILJIMA, C

PA (SHIH) SEIKO EPSON CORP

CYC 31

PI EP 1217421 A2 20020626 (200260)* EN 59 G02F001-1335
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK
NL PT RO SE SI TR

CN 1360220 A 20020724 (200269) G02F001-1333

US 2002154257 A1 20021024 (200273) G02F001-1335

KR 2002051858 A 20020629 (200301) G02F001-1335

JP 2003195296 A 20030709 (200354) 34 G02F001-13357

US 2003197189 A1 20031023 (200370) H01L033-00

TW 548485 A 20030821 (200409) G02F001-1335

US 2004041163 A1 20040304 (200417) H01L033-00

JP 2004086222 A 20040318 (200420) 49 G02F001-1343

KR 2003096157 A 20031224 (200426) G02F001-1335

CN 1515938 A 20040728 (200469) G02F001-1335

US 6909479 B2 20050621 (200543) G02F001-1335

US 2005174514 A1 20050811 (200553) G02F001-1335

US 2005190323 A1 20050901 (200558) G02F001-1335

KR 479303 B 20050328 (200566) G02F001-1335

JP 2006011486 A 20060112 (200605) 48 G02F001-13

JP 2006048071 A 20060216 (200614) 49 G02F001-13

CN 1165801 C 20040908 (200615) G02F001-1333

ADT EP 1217421 A2 EP 2001-310830 20011221; CN 1360220 A CN 2001-143375
20011221; US 2002154257 A1 US 2001-6660 20011210; KR 2002051858 A KR
2001-82330 20011221; JP 2003195296 A JP 2001-367090 20011130; US
2003197189 A1 Div ex US 2001-6660 20011210, US 2003-425738 20030430;
TW 548485 A TW 2001-131736 20011220; US 2004041163 A1 Div ex US
2001-6660 20011210, US 2003-425739 20030430; JP 2004086222 A Div ex
JP 2001-367090 20011130, JP 2003-345844 20031003; KR 2003096157 A KR
2003-83762 20031124; CN 1515938 A Div ex CN 2001-143375 20011221, CN
2003-123950 20011221; US 6909479 B2 US 2001-6660 20011210; US
2005174514 A1 Div ex US 2001-6660 20011210, US 2005-29503 20050106;
US 2005190323 A1 Div ex US 2001-6660 20011210, US 2005-119728
20050503; KR 479303 B KR 2001-82330 20011221; JP 2006011486 A Div ex
JP 2001-367090 20011130, JP 2005-254480 20050902; JP 2006048071 A
Div ex JP 2001-367090 20011130, JP 2005-250775 20050831; CN 1165801
C CN 2001-143375 20011221

FDT US 2005174514 A1 Div ex US 6909479; US 2005190323 A1 Div ex US
6909479; KR 479303 B Previous Publ. KR 2002051858

PRAI JP 2001-367090 20011130; JP 2000-390419 20001222;
JP 2001-188179 20010621; JP 2001-322670 20011019

IC ICM G02F001-13; G02F001-1333; G02F001-1335; G02F001-13357;
G02F001-1343; H01L033-00

ICS G02B005-00; G02B005-08; G02B005-20; G02B005-23

AB EP 1217421 A UPAB: 20060302

NOVELTY - The LCD panel is formed of liquid crystal sandwiched between a pair of mutually facing substrates with pixels

(615) comprising multiple sub-pixels (551) each corresponding to different colors. Back illumination is provided and a transreflective layer opposite to the observation side transmits the illumination light using different sub-pixel areas with a color filter (522).

DETAILED DESCRIPTION - The LCD panel also has pigment and non-pigment layer formation areas, and the transmissive area percentage at each sub-pixel is determined by the spectral properties. A transparent film smoothes the step between the pigment layer formation area and the area where pigment layers are not provided.

USE - Portable electronic and office automation equipment.

ADVANTAGE - Color reproduction deterioration can be suppressed when the spectral properties of the transmissive display illumination light are non-uniform. Good colorization and high visual recognition for both reflective and transmissive modes, with a simple configuration. The difference in reflective and transmissive mode light concentration is reduced and improves color reproduction giving excellent display quality. The transparent film eliminates e.g. cell gap irregularities giving improved reliability.

DESCRIPTION OF DRAWING(S) - The drawing shows a plan view of the positional relation between the first substrate transparent electrodes and the second substrate components. Color filter 522

Transparent electrodes 511, 525

Sub-pixels 551

Pixels 615

Dwg.3/33

FS EPI GMPI

FA AB; GI

MC EPI: U14-K01; U14-K01A1J; W05-E05B1

L21 ANSWER 19 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2002-218809 [28] WPIX

DNN N2002-167844 DNC C2002-067049

TI Resin substrate for liquid crystal display devices comprises transparent resin plate having at least conductive layer via transparent layer with lower refractive index than the resin plate.

DC A89 L03 P73 P81 U14

IN SAKATA, Y; SHIMODAIRA, K; UMEMOTO, S; YAGI, N

PA (NITL) NITTO DENKO CORP

CYC 29

PI EP 1168045 A2 20020102 (200228)* EN 16 G02F001-1335

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK

NL PT RO SE SI TR

JP 2002001857 A 20020108 (200228) 13 B32B007-02 <--

US 2002018864 A1 20020214 (200228) B32B007-02 <--

KR 2001114162 A 20011229 (200240) G02F001-1333

US 6710840 B2 20040323 (200421) G02F001-1333

ADT EP 1168045 A2 EP 2001-114691 20010619; JP 2002001857 A JP 2000-185977 20000621; US 2002018864 A1 US 2001-883941 20010620; KR 2001114162 A KR 2001-34914 20010620; US 6710840 B2 US 2001-883941 20010620

PRAI JP 2000-185977 20000621

IC ICM B32B007-02; G02F001-1333; G02F001-1335

ICS C09K019-00

AB EP 1168045 A UPAB: 20020502

NOVELTY - Resin substrate comprises a transparent resin plate (11) having at least a conductive layer (13) via a transparent layer (12) with a lower refractive index than the resin plate.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a liquid crystal display device having a liquid crystal display panel comprising at least a liquid crystal cell with a liquid crystal carried between a visible side substrate and a back side substrate that are disposed with electrodes on their substrates

opposed to one another. One or both of the visible side and back side substrates are the resin substrate of the invention.

USE - For liquid crystal display devices of the transmission or transmission/reflection type.

ADVANTAGE - The inventive resin substrate is superior in the backward transmission efficiency of a light that is incident upon the lateral face, thus providing a liquid crystal display device that is superior in the luminance and uniformity and which exhibits excellent display quality, while utilizing thin type and lightweight structure.

DESCRIPTION OF DRAWING(S) - The figure is a cross-sectional view of the inventive substrate.

Transparent resin plate 11

Transparent layer 12

Conductive layer 13

Dwg.1/9

TECH EP 1168045 A2 UPTX: 20020502

TECHNOLOGY FOCUS - POLYMERS - Preferred Properties: The optical length based on the product of a thickness of the transparent layer with lower refractive index and the refractive index is at least 100 nm. The conductive layer is transparent. The transparent resin plate is composed of resin having a glass transition temperature of at least 90degreesC.

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Components: The transparent layer with lower refractive index is composed of an inorganic dielectric. The substrate further comprises a **color filter layer** between the transparent layer with lower refractive index and the conductive layer. The liquid crystal display panel has a polarizer on one side or both sides of the liquid crystal cell. It has a **lighting** device on at least one of its lateral faces, and optical path converting device for converting the optical path of an illuminating **light** from the **lighting** device that is **incident** through the substrate by reflecting the **light** toward the other substrate is provided outside of the visible side substrate or the back side substrate.

ABEX EP 1168045 A2 UPTX: 20020502

EXAMPLE - Alicyclic epoxy resin was injected into a specularly treated mold and cured by heating. A transparent resin plate thus obtained having a thickness of 0.7 mm, a refractive index of 1.504, and a glass transition temperature of 120degreesC was treated in plasma in the argon atmosphere. Magnesium fluoride was deposited in vacuum by electron beam heating on one side to form the transparent layer having a thickness of 600 nm and a refractive index as low as 1.38, on which are formed the stripe-like color filter layers of red, blue, and green, and an indium tin oxide transparent conducting layer (electrode) by sputtering in succession, thus obtaining a resin substrate.

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-L03B; L03-G05A1

EPI: U14-K01A1C

L21 ANSWER 20 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2001-543759 [61] WPIX

DNN N2001-404109

TI Color filter board for reflection type liquid crystal display device, has **light** scattering layer consisting of micro lens corresponding to each **color pixel** for performing uniform **light** scattering.

DC P81 U14 V07

PA (TOPP) TOPPAN PRINTING CO LTD

CYC 1

PI JP 2000338476 A 20001208 (200161)* 7 G02F001-1335

ADT JP 2000338476 A JP 1999-144596 19990525

PRAI JP 1999-144596 19990525

IC ICM G02F001-1335

ICS G02B003-00; G02B005-20

AB JP2000338476 A UPAB: 20011024

NOVELTY - Color filter layer (2) is formed on a transparent substrate (1) and flatterring layer (3) is coated on the color filter layer. The light scattering layer (7) is laminated over the color filter layer. The light scattering layers comprises an array of micro lens (4) with flattened film (5). The micro lenses corresponds to each color pixel for maintaining light diffraction function.

USE - For reflection type liquid crystal display device.

ADVANTAGE - Light scattering layer consisting of micro lens, scatters incident light uniformly, thus providing bright display screen with large viewing angle.

DESCRIPTION OF DRAWING(S) - The figure shows the cross sectional view of color filter board.

Substrate 1

Color filter layer 2

Flatterring layer 3

Micro lens 4

Flattened film 5

Light scattering layer 7

Dwg.1/4

FS EPI GMPi

FA AB; GI

MC EPI: U14-K01A1C; V07-F02A

L21 ANSWER 21 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2001-435502 [47] WPIX

CR 2001-459611 [50]; 2001-467708 [51]

DNN N2001-322719 DNC C2001-131858

TI Color filter for color liquid display device, has a coloring layer containing coloring material obtained by converting soluble color precursor into insoluble pigment, in a solution containing stabilizer.

DC A60 A89 E13 E24 F01 G02 G05 L03 P75 P81 P84 T04 U14

IN FURUKAWA, M; HAO, Z; IQBAL, A; ITOU, K; NAKAMURA, K; YOSHIHARA, T

PA (NIPQ) DAINIPPON PRINTING CO LTD

CYC 2

PI JP 2001066411 A 20010316 (200147)* 9 G02B005-20

US 6656985 B1 20031202 (200379) C08K005-34

US 2004050294 A1 20040318 (200421) C09D011-00

ADT JP 2001066411 A JP 1999-240510 19990826; US 6656985 B1 US 2000-640175 20000817; US 2004050294 A1 Div ex US 2000-640175 20000817, US 2003-642212 20030818

FDT US 2004050294 A1 Div ex US 6656985

PRAI JP 1999-240510 19990826; JP 1999-240390 19990826;

JP 1999-240508 19990826

IC ICM C08K005-34; C09D011-00; G02B005-20

ICS B01F003-00; C09B067-00; C09K003-00; G02F001-1335; G03F007-004

AB JP2001066411 A UPAB: 20040326

NOVELTY - The color filter has a coloring layer containing coloring material formed on a transparent base material as a coloring pixel. The coloring material is obtained by converting soluble color precursor present in the solution (containing stabilizer which comprises organic substance having functional group which stabilizes dispersibility inside the solvent of insoluble pigment), into insoluble pigment.

USE - For color liquid crystal display device, solid image pick-up element and color video camera.

ADVANTAGE - The color filter with excellent spectrum characteristics such as color purity, high transmittance and high

contrast is obtained, since a coloring layer containing high concentration of pigment is provided.

Dwg.0/1

TECH JP 2001066411 AUPTX: 20010822

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Composition: The **coloring** layer comprises transparent resin in which the insoluble pigment obtained from the **coloring** material is dispersed. The transparent resin is positive type or negative resist resin, polymer or prepolymer which is cross-linked by impressing ionizing radiation, polymerization or depolymerization. The solidification of **coloring** material is carried out by concentrating it. The insoluble pigment having polar group such as hydroxyl group, is primary amine, secondary amine or cyclic amine. The stabilizer has groups such as carbonyl group, -NH₂, -CONH₂, -CONH-, -NHCOO-, -NHCONH-, (-NHCO)2N- or -OH. The stabilizer with a molecular weight of 20000 or less, has an amine titre and acid value. The amine titre value is larger than acid value. The amine titre value is preferably 1-230 mgKOH/g. The stabilizer has urethane bond and 0.1-20 reactant double bond groups per molecule. The **color** filter contains 10-90 weight % (wt.%) of insoluble pigment in the **coloring pixel** of **color** filter. The particle size distribution of insoluble pigment is 30+/-% of average particle diameter. The mean particle diameter of the insoluble pigment is in the range of 1-300 nm. The particles with a grain size of 300 nm or more in the **coloring pixel** of **color** filter is about 5 wt.% or less. Preferred Process: The transformation of soluble **color** precursor to insoluble pigment is carried out chemically or thermally by photolysis or irradiation. Preferred Properties: The contrast of **coloring pixel** of **color** filter is 2000 or more. The **light** transmittance of optical absorption area in the spectrum characteristics curve of visible region of **coloring pixel** is 0-20%. The **light** transmittance of **color** filter is about 50-100%.

FS CPI EPI GMPI

FA AB; DCN

MC CPI: A12-L03D; E10-G02H1; E25-E01
EPI: U14-K01A1C

L21 ANSWER 22 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1999-408356 [35] WPIX

DNN N1999-304731 DNC C1999-120973

TI Manufacture of color filter for LCD devices - involves irradiating a colored photosensitive resin layer having predetermined gamma value with specific light rays.

DC A89 G06 L03 P81 P84 U14

PA (HITB) HITACHI CHEM CO LTD

CYC 1

PI JP 11160523 A 19990618 (199935)* 6 G02B005-20 <--

ADT JP 11160523 A JP 1997-328439 19971128

PRAI JP 1997-328439 19971128

IC ICM G02B005-20

ICS G02F001-1335; G03F007-004

AB JP 11160523 A UPAB: 19991004

NOVELTY - A predetermined partition film with **pixel** (1) and a **colored** photosensitive resin layer (3) of gamma value 45-90 deg. are formed sequentially on a **transparent substrate** (2). Specific **light rays** is irradiated on the resin through predetermined openings provided on a mask (17) which is configured on the reverse side of the substrate. Subsequently, image development is performed repeatedly.

USE - For liquid crystal display devices etc.

ADVANTAGE - Hardening of the pixel adjoining the exposed pixel, mixing of colors and generation of contiguously formed pixels is prevented. DESCRIPTION OF DRAWING(S) - The figure is the sectional

drawing illustrating the manufacture of the color filter. (1) Partition film with pixel; ; (2) Glass substrate; ; (3) Colored photosensitive resin layer; ; (17) Mask.

Dwg.4/7

FS CPI EPI GMPI

FA AB; GI

MC CPI: A11-C02B; A12-L03B; A12-L03C; G06-D06; G06-E02; G06-F03C;
G06-G17; G06-G18; L03-G02
EPI: U14-K01A1C

L21 ANSWER 23 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1999-408355 [35] WPIX

DNN N1999-304730 DNC C1999-120972

TI Manufacture of color filter for liquid crystal display devices - involves irradiating a colored photosensitive resin layer having predetermined c value with specific light rays.

DC A89 G06 L03 P81 P84 U11 U14

PA (HITB) HITACHI CHEM CO LTD

CYC 1

PI JP 11160522 A 19990618 (199935)* 6 G02B005-20 <--

ADT JP 11160522 A JP 1997-328438 19971128

PRAI JP 1997-328438 19971128

IC ICM G02B005-20

ICS G02F001-1335; G03F007-004

AB JP 11160522 A UPAB: 19990902

NOVELTY - A predetermined partition film with pixels (1) and a colored photosensitive resin layer (3) of gamma value 50-90 deg. are formed sequentially on a transparent substrate (2). Specific light rays are irradiated on the resin through predetermined openings provided on a mask (17), which is arranged on the reverse side of the substrate. Subsequently, image development is performed repeatedly.

USE - For liquid crystal display devices etc.

ADVANTAGE - Hardening of the pixels adjoining the exposed pixel, mixing of colors and generation of contiguously formed pixels is prevented.

DESCRIPTION OF DRAWING - The figure is a sectional drawing illustrating the manufacture of the color filter

. (1) Partition film with pixel; (2) Glass substrate; (3)

Colored photosensitive resin layer; (17) Mask.

Dwg.4/7

FS CPI EPI GMPI

FA AB; GI

MC CPI: A10-E05; A11-C02B; A12-L02; A12-L03B; A12-L03D; G06-D; G06-D06;
G06-E02; G06-F03C; G06-G17; G06-G18; L03-G02; L03-G05B; L03-J
EPI: U11-C18D; U14-K01A1C

L21 ANSWER 24 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1999-408354 [35] WPIX

DNN N1999-304729 DNC C1999-120971

TI Manufacture of color filter for liquid crystal display devices - involves irradiating a colored photosensitive resin layer having predetermined c value with specific light rays.

DC A89 G06 L03 P81 P84 U11 U14

PA (HITB) HITACHI CHEM CO LTD

CYC 1

PI JP 11160520 A 19990618 (199935)* 6 G02B005-20 ←

ADT JP 11160520 A JP 1997-328436 19971128

PRAI JP 1997-328436 19971128

IC ICM G02B005-20

ICS G02F001-1335; G03F007-004

AB JP 11160520 A UPAB: 19990902

NOVELTY - A predetermined partition film with pixel (1) and a colored photosensitive resin layer (3) of gamma value 60-90 deg. are formed sequentially on a transparent

substrate (2). Specific **light** rays are irradiated on the resin through predetermined openings provided on a mask (17) which is configured on the reverse side of the substrate. Subsequently, image development is performed repeatedly.

USE - For liquid crystal display devices etc.

ADVANTAGE - Hardening of the pixel adjoining the exposed pixel, mixing of colors and generation of contiguously formed pixels is prevented.

DESCRIPTION OF DRAWING(S) - The figure is the sectional drawing illustrating the manufacture of the **color filter**

. (1) Partition film with pixel; (2) Glass substrate; (3) Colored photosensitive resin layer; (17) Mask.

Dwg.4/7

FS CPI EPI GMPI

FA AB; GI

MC CPI: A10-E05; A11-C02B; A12-L02; A12-L03B; A12-L03D; G06-D; G06-D06; G06-F03C; G06-G17; G06-G18; L03-G02; L03-G05B; L03-J
EPI: U11-C18D; U14-K01A1C

L21 ANSWER 25 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1999-297878 [25] WPIX

DNN N1999-224076 DNC C1999-087747

TI Colour filter production - including transpiration of coloured resin layer at irradiated portion to form coloured pixels.

DC A89 G06 L03 P81 P84 U11 U14

PA (SEKI) SEKISUI CHEM IND CO LTD

CYC 1

PI JP 11101908 A 19990413 (199925)* 10 G02B005-20 <--

ADT JP 11101908 A JP 1997-261499 19970926

PRAI JP 1997-261499 19970926

IC ICM G02B005-20

ICS G03F007-004

AB JP 11101908 A UPAB: 19990630

The prodn. comprises: (a) preparing transferring material having a dye-contg. **colouring** resin layer on a temporary support; (b) heating and pressing the **colouring** resin layer face of the transferring material against a **transparent substrate**; (c) peeling the temporary support from the transferring material; (d) hardening the **colouring** resin layer; (e) irradiating portions except a region coming a **coloured pixels** with laser light from the colour resin layer; and (f) transpiration of the **colouring** resin layer at the irradiated portion to form the **coloured pixels** consisting of the pattern-shaped **colouring** resin layer.

USE - The colour filter is used in a liq. crystal display.

ADVANTAGE - The coloured pixels are formed by the dry process, using laser ablation. The result evolves no mixing of dust caused by waste liq. disposal or a developer, enhancing yield. The coloured layer eliminates the need for photosensitivity. The result allows the use of materials having superior heat resistance and solvent resistance. The use of the dye for the colouring agent yields superior spectral characteristics and contrast. Forming the colouring resin layer on the substrate by the transfer method provides equal thickness in the colouring resin layers on the substrate and the first colour coloured pixels in forming the sec. colour. The first coloured pixels have no scrape in laser beam machining. The resulting colour filter has superior flatness.

Dwg.0/2

FS CPI EPI GMPI

FA AB

MC CPI: A12-L03B; A12-L03D; G06-C06; G06-G18; L03-G05B
EPI: U11-C18D; U14-K01A1C

L21 ANSWER 26 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1998-568889 [48] WPIX

DNN N1998-442555 DNC C1998-171090

TI Colour filter for liquid crystal displays - comprises layer of resin, dye and optionally metal complex for colour pattern with improved light resistance and little discoloration, useful for particularly reflective colour liquid crystal display devices.

DC A89 G02 L03 P81 U14

IN FURUKAWA, T; MURAI, T; TAKAHASHI, A

PA (KYO) KYODO PRINTING CO LTD

CYC 20

PI WO 9847027 A1 19981022 (199848)* JA 41 G02B005-20 <--
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: US

JP 10288708 A 19981027 (199902) 15 G02B005-20 <--
 US 6203951 B1 20010320 (200118) G02B005-20 <--

ADT WO 9847027 A1 WO 1998-JP1716 19980415; JP 10288708 A JP 1997-114397
 19970415; US 6203951 B1 WO 1998-JP1716 19980415, US 1998-202253
 19981210

FDT US 6203951 B1 Based on WO 9847027

PRAI JP 1997-114397 19970415

IC ICM G02B005-20
 ICS C09D007-12; G02B005-22; G02F001-1335

AB WO 9847027 A UPAB: 19981203

A colour filter for liquid crystal displays comprises a transparent substrate on which is a layer with a colour pattern of not less than 2 different colours, with minimum spectral transmittance of 4-40% at 420-610 nm. Such colour filter is made from a resin and dyes for colouring the resin with a thickness of not more than 0.7 μ m.

The colour filter is for reflective liquid-crystal displays wherein the light incident on one surface of a colour filter layer is reflected on the other side so that the light transmits through the colour filter layer twice.

Colour pattern of the colour filter has such a thickness that the colouring dyes will not strip out from the resin. There is at least 1 triphenylmethane- or xanthene-type colour pattern in the filter layer; weight ratio of solid fraction of the resin to colouring dye is 1:0.07-0.7, or similarly cyanine-, anthraquinone- or either azo or metal-containing azo-type dye in weight ratio of 1:0.04-0.3, 1:0.5-1 and 1:0.4-1, respectively. An additive may also be doped in, with weight ratio of solid fraction of the resin to metal complex being 1:0.01-0.3. Such metal complex can be dialkylphosphate, dialkyl-dithiocarbonate, benzenedithiol or the analogous dithiols as complexes with nickel, copper and cobalt.

Particularly, the colour pattern of the colour filter layer contains at least a colour pattern formed from yellow, and when the refractive index is large due to the substrate, the film thickness, d, of the yellow colour pattern is defined below, with m = 2 or 3, and λ = 550-580 nm.

d = film thickness; λ = wavelength;
 n = refractive index of the colour filter layer.

However, when the refractive index due to the substrate is comparatively small, d is defined as below:

$d = (2m + 1) \lambda / (4n)$
 $m = 1, 2 \text{ or } 3$ and $\lambda = 560-590 \text{ nm}$.

Similarly, 1 or more colour patterns can be formed from magenta, with the corresponding d values as already defined for larger and smaller refractive indices, m = 2 or 3, or 2, 3 or 4, and $\lambda = 430-470 \text{ nm}$. So are the d values due to large and small refractive indices for colour patterns made from cyan, with m = 2 or 3, and 1, 2 or 3, and $\lambda = 460-500 \text{ nm}$. The resin is preferably a polyimide resin.

USE - The colour filter is for colour liquid crystal display devices, particularly the reflective type.

ADVANTAGE - There is an improvement in light resistance, with less discoloration.

Dwg.1/1

FS CPI EPI GMPI

FA AB; GI

MC CPI: A12-L03B; A12-L03D; G02-A05; G02-A05B; L03-G05B

EPI: U14-K01A1C

L21 ANSWER 27 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1998-483376 [42] WPIX

DNN N1998-377141 DNC C1998-146272

TI Electroluminescent device with **colour filter**

layer - applies coating solution of silver halide photographic layer onto **transparent substrate** to form photographic material and patternwise exposes colour photographic material to light subjecting exposed colour material to colour development.

DC G06 L03 P81 P85 U14 X26

IN HIRAI, H

PA (FUJF) FUJI PHOTO FILM CO LTD

CYC 25

PI EP 866644 A2 19980923 (199842)* EN 20 H05B033-10 <--
R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL
PT RO SE SI

JP 10321369 A 19981204 (199908) 16 H05B033-12 <--

EP 866644 B1 20051026 (200571) EN H05B033-10 <--

R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DE 69831990 E 20051201 (200580) H05B033-10 <--

DE 69831990 T2 20060524 (200635) H05B033-10 <--

ADT EP 866644 A2 EP 1998-104929 19980318; JP 10321369 A JP 1998-67503

19980317; EP 866644 B1 EP 1998-104929 19980318; DE 69831990 E DE

1998-631990 19980318, EP 1998-104929 19980318; DE 69831990 T2 DE

1998-631990 19980318, EP 1998-104929 19980318

FDT DE 69831990 E Based on EP 866644; DE 69831990 T2 Based on EP 866644

PRAI JP 1997-66986 19970319

IC ICM H05B033-10; H05B033-12

ICS G02B005-20; G03C007-04; G03C007-12; G03C007-30;

G09F009-30; H05B033-04; H05B033-14;

H05B033-22

AB EP 866644 A UPAB: 19990302

The electroluminescent device comprises a **transparent substrate** bearing a **colour filter**

layer, a transparent electrode, an organic compound layer including a light-emitting layer and a back electrode. The **colour filter layer** has red, green and blue pixel patterns formed by applying a coating solution of a silver halide photographic layer onto the substrate to form a photographic material. The **colour** photographic material is exposed with a pattern. The photographic material is **colour** developed.

USE - For organic electroluminescent device in which **colour filter layer** is formed using silver halide colour photographic material.

ADVANTAGE - **Colour filter layer**

is produced with few or no pinholes or marks at high yield in simple production process. Full-colour device has electroluminescent device which is produced efficiently at low cost.

Dwg.0/1

FS CPI EPI GMPI

FA AB

MC CPI: G06-D06; G06-E04; G06-F01; G06-G10; G06-G18; L03-C04; L03-G02

EPI: U14-J02; X26-J

L21 ANSWER 28 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1998-145571 [13] WPIX

DNN N1998-115147 DNC C1998-047636

TI Black photosensitive resin composition of polymer-grafted carbon black, resin, crosslinking agent and photo-acid generator - forms a black matrix with light shielding properties and low reflectance, used to make colour filter (claimed) with smoothness and film strength especially for LCD.

DC A13 A14 A89 G06 L03 P81 P84 U14

IN ANDO, N; IKEDA, H; SHIMA, Y; TAGUCHI, T; TAMURA, A

PA (JAPC) NIPPON SHOKUBAI CO LTD; (TOPP) TOPPAN PRINTING CO LTD; (TOPP) TOPPAN INSATSU KK; (JAPC) NIPPON CATALYST CO LTD

CYC 21

PI WO 9805712 A1 19980212 (199813)* JA 24 C08K009-04
 RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: KR US

EP 854169 A1 19980722 (199833) EN C08K009-04
 R: DE FR GB NL

JP 10160927 A 19980619 (199835) 7 G02B005-20 <--
 US 5925484 A 19990720 (199935) G02B005-20 <--
 TW 366431 A 19990811 (200032) G02B005-20 <--
 KR 99063943 A 19990726 (200043) C08K009-04

ADT WO 9805712 A1 WO 1997-JP2606 19970729; EP 854169 A1 EP 1997-933043 19970729; WO 1997-JP2606 19970729; JP 10160927 A JP 1997-204388 19970730; US 5925484 A WO 1997-JP2606 19970729; US 1998-43572 19980401; TW 366431 A TW 1997-110839 19970730; KR 99063943 A WO 1997-JP2606 19970729; KR 1998-702416 19980402

FDT EP 854169 A1 Based on WO 9805712; US 5925484 A Based on WO 9805712; KR 99063943 A Based on WO 9805712

PRAI JP 1996-205044 19960802

IC ICM C08K009-04; G02B005-20
 ICS C08L101-00; C08L101-02; C09C001-56; G02B005-00; G02F001-1335; G03F007-00; G03F007-004; G03F007-033

AB WO 9805712 A UPAB: 19980330

A black photosensitive resin composition comprises 35-93.6 pts.wt. a polymer-grafted carbon black, 1-35 pts.wt. a resinous material, 0.4-15 pts.wt. a crosslinking agent and 5-15 pts.wt. a photo-acid generator. Also claimed is a process for producing a colour filter by: (1) applying **coloured pixels** to a **transparent substrate**; (2) applying the black photosensitive resin composition onto the **coloured pixels** and between them; (3) exposure of the **transparent substrate** side to **light**; (4) heating the substrate after **light** exposure; and (5) removing the unexposed black photosensitive resin composition by dissolving from the substrate after heating.

USE - The black photosensitive resin composition may be used to form a black matrix which is a highly sensitive resist itself, thereby allowing the production of a colour filter (claimed) particularly for liquid-crystal display devices.

ADVANTAGE - The black matrix obtained is free from any portion raised by the overlapping **coloured pixels** and the matrix, has a high density enough to shield the **light** and exhibits a low reflectance. The **colour** filter produced from the composition has a high smoothness and high film strength. There is no need to add catechol UV absorbents and fluorescence enhancers to the **coloured pixels** to bring sharpness. Since the carbon black is chemically bound to the polymer, there is also no leaking of the developing liquid.

Dwg.1/2

FS CPI EPI GMPI

FA AB; GI

MC CPI: A08-C01; A11-C02B; A12-L02; A12-L03B; A12-L03D; G06-D04; G06-F03C; G06-F03D; G06-G17; G06-G18; L03-G02; L03-G05B
 EPI: U14-K01A1C

L21 ANSWER 29 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1997-248961 [23] WPIX

DNN N1997-205390

TI Colour filter in colour LCD device - has colouring parts, to colour opening part of shading film and does not overlap with laminated colouring layer.

DC P81 U11 U14

PA (CANO) CANON KK

CYC 1

PI JP 09080223 A 19970328 (199723)* 11 G02B005-20 <--

ADT JP 09080223 A JP 1995-257256 19950911

PRAI JP 1995-257256 19950911

IC ICM G02B005-20

ICS G02F001-1335

AB JP 09080223 A UPAB: 19970606

The filter has pixel part (30), with different colours, arranged on a **transparent substrate** (21). A shading film (22) with opening parts (31a-31c) is formed in position, where the pixel part is formed. Multiple colouring layers (23-25) formed.

Corresponding to the **colours** of the **pixel** part and is formed with visible **light** transparency material. A set of **colouring** parts (26-28) **colours** opening part of the shading **filter**. Each **colouring** **layer** is dominated and does not overlap with the **colouring** part. Each **colouring** part forms the **pixel** part with different **colours**.

ADVANTAGE - Improves colour reproduction nature offers highly precise colour filter.

Dwg.1/5

FS EPI GMPI

FA AB; GI

MC EPI: U11-C18D; U14-K01A1C

L21 ANSWER 30 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1996-101015 [11] WPIX

DNN N1996-084445

TI Colour filter mfr. for colour liquid crystal display device - involves forming of **colour filter layer** on colour pixel of **transparent substrate** after having been polished.

DC P81 U11 U14

PA (TOPP) TOPPAN PRINTING CO LTD

CYC 1

PI JP 08005813 A 19960112 (199611)* 3 G02B005-20 <--

ADT JP 08005813 A JP 1994-133081 19940615

PRAI JP 1994-133081 19940615

IC ICM G02B005-20

AB JP 08005813 A UPAB: 19960315

The mfg method involves forming a **light** sensitive transparent resin layer (4) on a **transparent substrate** (1). A resin layer is formed corresponding to the **colour pixel** of the substrate. An optical stiffening type or heat stiffening type resin is used to fill the gap between the space in the substrate. This resin gets hardened and forms a dark layer (2) after polishing it. A **colour filter layer** (3) is formed on the **colour pixel** after polishing the dark layer.

ADVANTAGE - Improves and stabilises display quality of display panel. Avoids generation of difference in level in colour filter.

Dwg.7/7

FS EPI GMPI

FA AB; GI

MC EPI: U11-C18D; U14-K01A1C

L21 ANSWER 31 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1993-397821 [50] WPIX

DNN N1993-307572 DNC C1993-177010

TI Prepn. of **light** shutting **layer** for **colour filter** of liquid crystal display element -

by forming colour pixels on transparent substrate, applying photosensitive dyeable medium, selective exposure from rear and developing.

DC A89 L03 P81 U11 U14
 PA (TORA) TORAY IND INC
 CYC 1
 PI JP 05297211 A 19931112 (199350)* 4 G02B005-20 <--
 ADT JP 05297211 A JP 1992-98049 19920417
 PRAI JP 1992-98049 19920417
 IC ICM G02B005-20
 AB JP 05297211 A UPAB: 19940203

Colour pixels of red, green and blue are formed over the surface of a light-transmitting substrate using pigment dispersed polymer compsn.. Then a layer of a photosensitive, dyeable medium is applied on top, and selective exposure effected from the rear side of the substrate, followed by development. The layer of dyeable medium e.g. formed selectively at the gaps between the pixels. Then the formed matrix of dyeable medium is dyed with a dye absorbing visible light, using e.g. collagen, gelatin, glue, casein, polyvinyl alcohol or polyvinyl pyrrolidone with the admixture of a chromate salt, as the dyeable medium.

ADVANTAGE - A black matrix of high precision can be prepared simply, permitting easy mfr. of colour filters.

Dwg.0/0

FS CPI EPI GMPI
 FA AB
 MC CPI: A12-L03; A12-L03B; L03-G02; L03-G05B
 EPI: U11-C18D; U14-K01A1C

L21 ANSWER 32 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1992-362744 [44] WPIX

DNN N1992-276388 DNC C1992-161114

TI Prepn. of colour filter without photomasking - by coating photosensitive adhesive layer on lenticular lens, applying colourant, and repeating with more adhesive and colourant(s).

DC A89 G06 P81 U11 U14
 PA (NIPQ) DAINIPPON PRINTING CO LTD
 CYC 1
 PI JP 04265905 A 19920922 (199244)* 8 G02B005-20 <--
 ADT JP 04265905 A JP 1991-27526 19910221
 PRAI JP 1991-27526 19910221
 IC ICM G02B005-20
 ICS G02F001-1335
 AB JP 04265905 A UPAB: 19931006

A lenticular lens is disposed covering one face of a transparent baseplate. Photosensitive material, that turns sticky upon exposure to light, is applied over the baseplate's other face to form a photosensitive layer. Through irradiation from the len's side at a specified incident angle, the photosensitive layer is exposed in a specified pattern, and then a colourant powder is applied for adhesion onto the exposed portions to form a colour pattern. These steps are repeated for required colours with respective colourant powders and at different specified incident angles to prepare a colour filter having a coloured layer consisting of multiple colour patterns. Pref. the transparent base plate is a glass plate or a nitro-cellulose base and the lens is dismounted after the completion of coloured layer formation.

ADVANTAGE - High precision colour filters can be prepared without the use of photomasking which requires correct registering, and with reduced mfg. cost.

3/4

FS CPI EPI GMPI

FA AB
MC CPI: A08-E01; A11-A01B; A12-L02; A12-L03; G06-D; G06-E; G06-F03;
G06-G; G06-G18
EPI: U11-C18D; U14-K01A1C

L21 ANSWER 33 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
AN 1992-362743 [44] WPIX
DNN N1992-276387 DNC C1992-161113
TI Prepn. of high precision colour filter - includes applying
dispersion of pigment in photosensitive medium over one face of
baseplate, disposing lenticular lens on other face of baseplate,
exposing, etc..
DC A89 G06 P81 U14
PA (NIPQ) DAINIPPON PRINTING CO LTD
CYC 1
PI JP 04265904 A 19920922 (199244)* 8 G02B005-20 <--
ADT JP 04265904 A JP 1991-27523 19910221
PRAI JP 1991-27523 19910221
IC ICM G02B005-20
ICS G02F001-1335
AB JP 04265904 A UPAB: 19931006
A dispersion of pigment in a photosensitive medium is applied over
one face of a **transparent baseplate** to form a
(coloured) photosensitive layer. A lenticular lens is disposed on
the baseplate's other face and exposure is effected through the lens
at a specified incident angle, followed by development to form a
coloured pattern. These steps are repeated (with different pigment
dispersions for required colours) at incident angles in stepwise
variations to prepare a colour filter having a
coloured layer consisting of colour patterns.
ADVANTAGE - The multilenticular focusing of **incident**
light produces cured pattern, whose location can be
controlled by the **incident** angle. The conventional
photomasking is unnecessary. High precision colour filters
can be prepd in simplified mfg. steps, permitting redn of the mfg.
cost.
2/5
FS CPI EPI GMPI
FA AB; GI
MC CPI: A08-E01; A12-L02; A12-L03; G06-D; G06-E04; G06-F03; G06-G17;
G06-G18
EPI: U14-K01A1C

L21 ANSWER 34 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
AN 1992-358908 [44] WPIX
DNN N1992-273560 DNC C1992-159326
TI Prodn. of colour filter - by forming photosensitive film on
electrically conductive layer on **transparent**
substrate, exposing through mask having patterns or at least
three different deg. of light transmittance.
DC A14 A28 A89 E17 G06 P81 P83 P84 U11 U14
IN NAKAMURA, T; OTSUKI, Y; SATO, H; YAMASITA, Y; YUASA, H
PA (NIOC) NIPPON OIL KK
CYC 7
PI EP 510684 A1 19921028 (199244)* EN 24 G03F007-20
R: DE FR GB NL
JP 04324802 A 19921113 (199252) 10 G02B005-20 <--
JP 04326304 A 19921116 (199252) 11 G02B005-20 <--
CA 2066907 A 19921026 (199303) G03F007-00
US 5314769 A 19940524 (199420) 18 G03F009-00
ADT EP 510684 A1 EP 1992-107050 19920424; JP 04324802 A JP 1991-95630
19910425; JP 04326304 A JP 1991-97281 19910426; CA 2066907 A CA
1992-2066907 19920423; US 5314769 A US 1992-872612 19920422
PRAI JP 1991-95630 19910425; JP 1991-97281 19910426
REP EP 113237; FR 2228242; JP 59114572; US 4035522; US 4730010; US
4730011

IC ICM G02B005-20; G03F007-20; G03F009-00
 ICS G02F001-1335; G03C007-12; G03F001-14
 AB EP 510684 A UPAB: 19931116
 Prodn. of a colour filter comprises: (A) forming a photosensitive coating film on a transparent electrically conductive layer formed on a **surface of a transparent substrate** and exposing the film through a mask having patterns of at least three different degrees of light transmittances; (B) developing and removing a photosensitive film region registering with one of the patterns of, smallest and largest degrees of light transmittances for exposing the conductive layer and electrodepositing a coloured coating on the exposed transparent electrically conductive layer for forming a coloured layer thereon, this operation of developing and removing the photosensitive film and the coloured coating is repeated for the respective patterns of different degrees of light transmittances in sequence of difference in light transmittance to form different coloured layers, resp.; and (C) selectively forming a metal layer on at least one exposed region of the transparent electrically conductive layer.

USE/ADVANTAGE - A **colour** filter is formed without high precision fine processing and which has a large degree of freedom in selecting the pattern contour of the **coloured** layers and non-**light** transmitting layers can be arrayed without gaps between the **colour** filter **pixels**. The process can be used for prepg. a **colour** filter which can be adapted easily for larger picture size and which can be mass-produced easily.

1/3

Dwg.1/3

FS CPI EPI GMPI

FA AB; GI; DCN

MC CPI: A11-C04B1; A12-L02; A12-L03; E10-A09B7; E10-A14; G06-D;
 G06-F03; G06-G17; G06-G18
 EPI: U11-C18D; U14-K01A1C

L21 ANSWER 35 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1992-170784 [21] WPIX

DNN N1992-128633 DNC C1992-078530

TI Liquid crystal colour display element - comprises LC held between **baseplates** having **transparent** electrode **films** and **colour** **filters**.

DC L03 P81 U14

PA (RICO) RICOH KK

CYC 1

PI JP 04106524 A 19920408 (199221)* 5

ADT JP 04106524 A JP 1990-224978 19900827

PRAI JP 1990-224978 19900827

IC G02B005-20; G02F001-13

AB JP 04106524 A UPAB: 19931006

An LC is sandwiched between a pair of **base** plates carrying **transparent** electrode films for displaying. A **colour** filter consisting of red, green and blue **pixel** portions corresponding to the display's dot pattern and **light** shutting portions disposed between the **coloured** portions is provided over one base plate or over its transparent electrode film, through **colour** developing reactions of **colour** producing members.

ADVANTAGE - Simple mfg. procedure, good flatness of the colour filter surface and high precision patterning. (1/7)

1/7

FS CPI EPI GMPI

FA AB; GI

MC CPI: L03-G05B

EPI: U14-K01A1C

L21 ANSWER 36 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 1988-115111 [17] WPIX
 CR 1988-115110 [17]; 1988-115112 [17]; 1988-252984 [36]; 1993-177822 [22]
 DNN N1988-087442 DNC C1988-051656
 TI Ferroelectric liq. crystal element - is sandwiched between two parallel **base** plates with **transparent** electrodes, colour filters being placed between plate(s) and liq. crystal.
 DC A85 L03 P81 U14 V07
 IN KAMIO, M; KANBE, J; KIKUCHI, Y; MURATA, T; SEKIMURA, N; TAKAO, H; TAMURA, M
 PA (CANO) CANON KK
 CYC 2
 PI JP 63060424 A 19880316 (198817)* 9
 US 5500751 A 19960319 (199617) 1 G02F001-1335
 US 5548424 A 19960820 (199639) 24 G02F001-1335
 US 5568293 A 19961022 (199648) 23 G02F001-1335
 ADT JP 63060424 A JP 1986-202747 19860830; US 5500751 A Div ex US 1987-90703 19870828, Div ex US 1989-416034 19891002, Cont of US 1991-806099 19911211, Div ex US 1994-238345 19940505, Div ex US 1994-352756 19941205, US 1995-430418 19950428; US 5548424 A Div ex US 1987-90703 19870828, Div ex US 1989-416034 19891002, Cont of US 1991-806099 19911211, Div ex US 1994-238345 19940505, US 1994-352756 19941205; US 5568293 A Div ex US 1987-90703 19870828, Div ex US 1989-416034 19891002, Cont of US 1991-806099 19911211, Div ex US 1994-238345 19940505, Div ex US 1994-352756 19941205, US 1995-430422 19950428
 FDT US 5500751 A Div ex US 4917471, Div ex US 5101289, Div ex US 5398126; US 5548424 A Div ex US 4917471, Div ex US 5101289, Div ex US 5398126; US 5568293 A Div ex US 4917471, Div ex US 5101289, Div ex US 5398126
 PRAI JP 1986-202747 19860830; JP 1986-202746 19860830;
 JP 1986-202748 19860830; JP 1986-202749 19860830;
 JP 1986-275352 19861120; JP 1987-14923 19870123
 IC G02B005-20; G02F001-13
 ICM G02F001-1335
 ICS C09K019-02; G02B005-20; G02F001-13; G02F001-1333
 AB JP 63060424 A UPAB: 19950508
 Ferroelectric liq. crystal is sandwiched between a pair of parallel **base** plates with **transparent** electrodes and colour filters are placed between at least one of the base plates and the liq. crystal. The colour filters are formed by photolitho-processing of coloured resins comprising the colourants dispersed in a polyamino-type resin having intramolecular photosensitive gps.. The invention is characterised in the adjustment of optical density for respective colour filters to satisfy the relationship x is up to $1/10$ do (where do is the thickness of the cell in micro-m and x is the difference in film thickness of respective pixels).
 Polyamino type resin is pref. aromatic polyamide or polyimide resins and there is provision of a protective **layer** between the **colour filter layer** and the transparent electrode.
 ADVANTAGE - Flaws in orientation are prevented by elimination of level gaps between respective **pixels**. The **colour** filters have excellent mechanical strength, heat resistance, **light** fastness, solvent resistance etc..
 Mfg.process is simple.
 4/11
 Dwg.4/11
 FS CPI EPI GMPI
 FA AB; GI
 MC CPI: A12-L03B; L03-D04; L03-G05A
 EPI: U14-K01A1
 L21 ANSWER 37 OF 37 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN
 AN 1988-115109 [17] WPIX

CR 1987-310237 [44]; 1993-169782 [21]
DNN N1988-087440 DNC C1988-051654
TI Ferroelectric liq.-crystal element with pixel colour filters -
formed in about same thickness by photo litho processing of coloured
resins preventing orientation flaws.
DC A85 L03 P81 U14
IN KAMIO, M; MOTOI, T; MURATA, T; SEKIMURA, N; TAKAO, H
PA (CANO) CANON KK
CYC 2
PI JP 63060422 A 19880316 (198817)* 9
US 4802743 A 19890207 (198908) 18
JP 07113717 B2 19951206 (199602) 9 G02F001-1335
ADT JP 63060422 A JP 1986-202745 19860830; US 4802743 A US 1987-27308
19870318; JP 07113717 B2 JP 1986-202745 19860830
FDT JP 07113717 B2 Based on JP 63060422
PRAI JP 1986-202745 19860830; JP 1986-60614 19860320
IC G02B005-20; G02F001-13
ICM G02F001-1335
ICS G02B005-20; G02F001-13
AB JP 63060422 A UPAB: 19961004
A ferroelectric liq crystal is sandwiched between a pair of parallel
base plates with transparent electrodes formed on
the surfaces, colour filters being interposed between at least one
of the base plates and the liq. crystal. The invention is
characterised in that the colour filters of respective pixels are
formed in about the same thickness by a photolitho-processing of
coloured resins comprising the colourants dispersed in a
polyamino-type resin having intramolecular photo-sensitive groups.
Patterned transparent electrode and orientation film are laminated
successively over the colour filters. The subclaims include aromatic
polyamide or polyimide resins and other details.
USE/ADVANTAGE - Flaws in orientation are prevented by
elimination of level gaps between the pixels. The
colour filters are excellent in mechanic strengths, heat
resistance, light fastness, solvent resistance and other
characteristics. The mfg. process is simple.
4/5/5
Dwg. 4/5/5
FS CPI EPI GMPI
FA AB; GI
MC CPI: A12-L03B; L03-D04; L03-G05A
EPI: U14-K01A2

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 20:12:25 ON 27 SEP 2006

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=> d 112 que stat

L1 3034 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?)
(2A) FILTER? (2A) (LAYER? OR SHEET? OR FILM?)
L2 24782 SEA FILE=HCAPLUS ABB=ON PLU=ON (TRANSPARENT OR CLEAR)
(2A) (SUBSTRATE? OR SURFACE? OR BASE?)
L3 52 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL? (S) INCIDENT?
L4 1081 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL?
L5 703 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) INCIDENT?
L6 36059 SEA FILE=HCAPLUS ABB=ON PLU=ON (ROUGH OR IRREGULAR? OR
BUMPY OR COARSE OR CONCAVE (2A) CONVEX OR GROOV? OR
CORRUGAT? OR UNEVEN) (2A) (LAYER? OR SURFACE? OR FILM?)

```

OR SHEET?)
L7      3 SEA FILE=HCAPLUS ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4
OR L5) AND L6
L8      35 SEA FILE=HCAPLUS ABB=ON PLU=ON L1 AND L2 AND (L3 OR L4
OR L5)
L9      3 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 AND (COLOUR? OR
COLOR?) (3A) CONVER?
L10     5 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 AND (EL OR E(W)L OR
ELECTROLUM!IN? OR ORGANOLUM!IN? OR LIGHT (2A) EMIT? OR EMISSION))
L11     7 SEA FILE=HCAPLUS ABB=ON PLU=ON L7 OR L9 OR L10
L12     6 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 AND (1840-2003)/PRY,
PY,AY

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=> file jicst

FILE 'JICST-EPLUS' ENTERED AT 20:12:36 ON 27 SEP 2006
 COPYRIGHT (C) 2006 Japan Science and Technology Agency (JST)

=> d 136 que stat

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L1      3034 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?)
(2A) FILTER? (2A) (LAYER? OR SHEET? OR FILM?)
L2      24782 SEA FILE=HCAPLUS ABB=ON PLU=ON (TRANSPARENT OR CLEAR)
(2A) (SUBSTRATE? OR SURFACE? OR BASE?)
L3      52 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL? (S) INCIDENT?
L4      1081 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL?
L5      703 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) INCIDENT?
L6      36059 SEA FILE=HCAPLUS ABB=ON PLU=ON (ROUGH OR IRREGULAR? OR
BUMPY OR COARSE OR CONCAVE (2A) CONVEX OR GROOV? OR
CORRUGAT? OR UNEVEN) (2A) (LAYER? OR SURFACE? OR FILM?
OR SHEET?)
L31     0 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L1 AND L2 AND (L3
OR L4 OR L5) AND L6
L32     3 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L1 AND L2 AND (L2
OR L4 OR L5)
L34     1 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L32 AND (EL OR
E(W)L OR ELECTROLUM!IN? OR ORGANO!IN? OR LIGHT (2A)
(EMIT? OR EMISSION))
L35     3 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L31 OR L32 OR L34
L36     2 SEA FILE=JICST-EPLUS ABB=ON PLU=ON L35 AND (1840-2003)/
PRY,PY,AY

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=> file japio

FILE 'JAPIO' ENTERED AT 20:12:53 ON 27 SEP 2006
 COPYRIGHT (C) 2006 Japanese Patent Office (JPO)- JAPIO

=> d 130 que stat

```

L1      3034 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?)
(2A) FILTER? (2A) (LAYER? OR SHEET? OR FILM?)
L2      24782 SEA FILE=HCAPLUS ABB=ON PLU=ON (TRANSPARENT OR CLEAR)
(2A) (SUBSTRATE? OR SURFACE? OR BASE?)
L3      52 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL? (S) INCIDENT?
L4      1081 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL?
L5      703 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) INCIDENT?
L6      36059 SEA FILE=HCAPLUS ABB=ON PLU=ON (ROUGH OR IRREGULAR? OR
BUMPY OR COARSE OR CONCAVE (2A) CONVEX OR GROOV? OR
CORRUGAT? OR UNEVEN) (2A) (LAYER? OR SURFACE? OR FILM?

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OR SHEET?)
L22      3 SEA FILE=JAPIO ABB=ON  PLU=ON  L1 AND L2 AND (L3 OR L4
OR L5) AND L6
L23      68 SEA FILE=JAPIO ABB=ON  PLU=ON  L1 AND L2 AND (L3 OR L4
OR L5)
L24      4 SEA FILE=JAPIO ABB=ON  PLU=ON  L23 AND (COLOUR? OR
COLOR?) (3A) CONVER?
L27      4 SEA FILE=JAPIO ABB=ON  PLU=ON  L23 AND G02B001-11/IC
L28      3 SEA FILE=JAPIO ABB=ON  PLU=ON  L23 AND H05B033?/IC
L29      9 SEA FILE=JAPIO ABB=ON  PLU=ON  L22 OR L24 OR L24 OR L27
OR L28
L30      9 SEA FILE=JAPIO ABB=ON  PLU=ON  L29 AND (1840-2003)/PRY,PY
,AY

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=> file compendex
FILE 'COMPENDEX' ENTERED AT 20:13:14 ON 27 SEP 2006
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=> d l39 que stat
L1      3034 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLOUR? OR COLOR?)
(2A) FILTER? (2A) (LAYER? OR SHEET? OR FILM?)
L2      24782 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (TRANSPARENT OR CLEAR)
(2A) (SUBSTRATE? OR SURFACE? OR BASE?)
L3      52 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL? (S) INCIDENT?
L4      1081 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) PIXEL?
L5      703 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLOUR? OR COLOR?) (S)
(LIGHT? OR PHOTON?) (S) INCIDENT?
L6      36059 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (ROUGH OR IRREGULAR? OR
BUMPY OR COARSE OR CONCAVE (2A) CONVEX OR GROOV? OR
CORRUGAT? OR UNEVEN) (2A) (LAYER? OR SURFACE? OR FILM?
OR SHEET?)
L37      0 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L1 AND L2 AND (L3 OR
L4 OR L5) AND L6
L38      0 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L1 AND L2 AND (L3 OR
L4 OR L5)
L39      0 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L37 OR L38

```

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=> file hcaplus jicst japio
FILE 'HCAPLUS' ENTERED AT 20:13:54 ON 27 SEP 2006
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FILE 'JICST-EPLUS' ENTERED AT 20:13:54 ON 27 SEP 2006
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FILE 'JAPIO' ENTERED AT 20:13:54 ON 27 SEP 2006
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=> dup rem l12 l36 l30
PROCESSING COMPLETED FOR L12
PROCESSING COMPLETED FOR L36
PROCESSING COMPLETED FOR L30
L40      17 DUP REM L12 L36 L30 (0 DUPLICATES REMOVED)

```


=> d all 140 1-17

L40 ANSWER 1 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:116841 HCAPLUS
 ED Entered STN: 10 Feb 2005
 TI The optical filter for organic **EL** display and the organic
EL display which uses this [Machine Translation].
 IN Baba, Yasuko; Asano, Masaaki
 PA Dainippon Printing Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G02B005-20
 ICS H05B033-12; H05B033-14

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005037471	A2	20050210	JP 2003-197632	20030716

<--

PRAI JP 2003-197632

20030716 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2005037471	ICM	G02B005-20
	ICS	H05B033-12; H05B033-14
	IPCI	G02B0005-20 [ICM,7]; H05B0033-12 [ICS,7]; H05B0033-14 [ICS,7]
	IPCR	G02B0005-20 [I,A]; G02B0005-20 [I,C*]; H05B0033-12 [I,A]; H05B0033-12 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]
	FTERM	2H048/BA02; 2H048/BA45; 2H048/BA55; 2H048/BB02; 2H048/BB10; 2H048/BB24; 2H048/BB28; 2H048/BB37; 2H048/BB41; 3K007/AB11; 3K007/AB18; 3K007/BA06; 3K007/BB06; 3K007/DB03; 3K007/FA01

AB [Machine Translation of Descriptors]. Preceding forming the each stratum after the 1st electrode layer, in order to form the protective layer which covers color filter layer or color conversion layer etc., the difference in level which it occurs with the protective layer becoming cause, offer the optical filter which cancels the occurrence of broken wire of the higher stratum of society which happens, and the organic **EL** display which uses this. In the concave condition area which is provided in the transparent substrate, color is revised the color filter layer which is at least laminated the incident light of each every pixel, protective layer covers the aforementioned color filter layer, at the same time in order to bury the opening inside the aforementioned concave condition area, we are formed, the optical filter which features that the protective layer surface and the baseplate surface outside concave condition area are connected to flush.

L40 ANSWER 2 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2004:403070 HCAPLUS
 DN 140:415052
 ED Entered STN: 19 May 2004
 TI White-emitting organic electroluminescent display with color filters and reflective layer for causing colored light constructive interference
 IN Winters, Dustin; Shore, Joel D.; Van Slyke, Steven A.
 PA Eastman Kodak Company, USA

SO U.S., 16 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM H01J001-70
 INCL 313504000; 313505000; 313113000
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 73, 76

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6737800	B1	20040518	US 2003-369416	20030218
EP 1449904	A2	20040825	EP 2004-75374	20040206
KR 2004074958	A	20040826	KR 2004-10410	20040217
JP 2004253389	A2	20040909	JP 2004-41629	20040218

PRAI US 2003-369416

A 20030218 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6737800	ICM	H01J001-70
	INCL	313504000; 313505000; 313113000
	IPCI	H01J0001-70 [ICM,7]; H01J0001-00 [ICM,7,C*]
	IPCR	C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H01L0027-28 [N,C*]; H01L0027-32 [N,A]; H01L0051-05 [N,C*]; H01L0051-30 [N,A]; H01L0051-50 [I,C*]; H01L0051-52 [I,A]
	NCL	313/504.000; 257/E51.041; 257/E51.044; 257/E51.047; 257/E51.049; 257/E51.051; 313/113.000; 313/505.000
EP 1449904	ECLA	C09K011/06; H01L051/52D
	IPCI	C09K0011-06 [ICM,7]; H05B0033-14 [ICS,7]; H01L0051-20 [ICS,7]
	IPCR	C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H01L0027-28 [N,C*]; H01L0027-32 [N,A]; H01L0051-05 [N,C*]; H01L0051-30 [N,A]; H01L0051-50 [I,C*]; H01L0051-52 [I,A]
KR 2004074958	ECLA	C09K011/06; H01L051/52D
JP 2004253389	IPCI	H05B0033-26 [ICM,7]
	IPCI	H05B0033-14 [ICM,7]; H05B0033-12 [ICS,7]; H05B0033-28 [ICS,7]; H05B0033-26 [ICS,7,C*]
	IPCR	C09K0011-06 [I,A]; C09K0011-06 [I,C*]; H01L0027-28 [N,C*]; H01L0027-32 [N,A]; H01L0051-05 [N,C*]; H01L0051-30 [N,A]; H01L0051-50 [I,C*]; H01L0051-52 [I,A]
	FTERM	3K007/AB03; 3K007/AB18; 3K007/BA06; 3K007/CB01; 3K007/DB03

AB Multicolor org. light-emitting displays having
 an array of pixels having at least two different
 colors are described which comprise a substrate; a

reflective layer disposed over the **substrate**; a first **transparent** electrode disposed over the reflective layer; a second transparent electrode spaced from the first transparent electrode; org. **EL** media disposed between the first and second transparent electrodes and arranged to produce white light; at least first and second filters of different colors disposed resp. over different predetd. **pixels** of the array; where the thickness of the first transparent electrode is sep. adjusted for each different color to cause a substantial amt. of the reflected component of **colored light** corresponding to its assocd. color filter to constructively interfere with a substantial amt. of the non-reflected component of **colored light** corresponding to its assocd. color filter.

- ST multicolor electroluminescent display color filter reflective interference OLED
- IT Optical imaging devices
(color; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT Electroluminescent devices
(displays; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT Transparent films
(elec. conductive, electrode; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT Luminescent screens
(electroluminescent; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT Electric conductors
(films, transparent, electrode; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT Coating materials
(reflective; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT Interference
Optical filters
(white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT 7440-44-0, Diamond-like carbon, uses
RL: DEV (Device component use); USES (Uses)
(diamond-like, transparent layer; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT 1332-29-2, Tin oxide 7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses 7439-98-7, Molybdenum, uses 7440-22-4, Silver, uses 50926-11-9, Indium-tin oxide 117944-65-7, Indium-zinc oxide
RL: DEV (Device component use); USES (Uses)
(transparent electrode; white-emitting org. electroluminescent display with **color filters** and reflective **layer** for causing colored light constructive interference)
- IT 7631-86-9, Silicon oxide (SiO₂), uses 11105-01-4, Silicon nitride oxide 12033-89-5, Silicon nitride (Si₃N₄), uses
RL: DEV (Device component use); USES (Uses)
(transparent layer; white-emitting org. electroluminescent

display with color filters and reflective layer for causing colored light constructive interference)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Anon; JP 41992328295 1991
- (2) Anon; EP 1102317 2001 HCAPLUS
- (3) Anon; JP 2002252087 A 2002 HCAPLUS
- (4) Antoniadis; US 6366017 B1 2002 HCAPLUS
- (5) Hosokawa; US 6124024 A 2000 HCAPLUS
- (6) Roitman; US 20030057828 A1 2003
- (7) Shimoda; US 6639250 B1 2003 HCAPLUS
- (8) Tang; US 5550066 A 1996 HCAPLUS
- (9) Yoneda; US 6392340 B2 2002 HCAPLUS

L40 ANSWER 3 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:753960 HCAPLUS

ED Entered STN: 16 Sep 2004

TI The optical filter and the organic EL display which uses this [Machine Translation].

IN Baba, Yasuko; Asano, Masaaki

PA Dainippon Printing Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G02B005-20

ICS G02B001-11; H05B033-12; H05B033-14

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004258586	A2	20040916	JP 2003-52204	20030228
US 2004253413	A1	20041216	US 2004-785489	20040224

PRAI JP 2003-52204 A 20030228 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004258586	ICM	G02B005-20
	ICS	G02B001-11; H05B033-12; H05B033-14
	IPCI	G02B0005-20 [ICM,7]; G02B0001-11 [ICS,7]; G02B0001-10 [ICS,7,C*]; H05B0033-12 [ICS,7]; H05B0033-14 [ICS,7]
	IPCR	G02B0005-20 [I,A]; G02B0005-20 [I,C*]
	FTERM	2H048/BA02; 2H048/BA45; 2H048/BB02; 2H048/BB10; 2H048/BB41; 2K009/AA01; 2K009/AA15; 2K009/CC24; 2K009/DD01; 2K009/DD06; 3K007/AB04; 3K007/AB11; 3K007/AB12; 3K007/AB13; 3K007/AB17; 3K007/BA06; 3K007/BB06; 3K007/DB03
US 2004253413	IPCI	B32B0001-00 [ICM,7]; H05B0033-02 [ICS,7]
	IPCR	G02B0005-20 [I,A]; G02B0005-20 [I,C*]
	NCL	428/141.000; 257/088.000; 257/098.000; 313/112.000; 313/504.000; 428/690.000; 428/917.000
	ECLA	G02B005/20A

AB [Machine Translation of Descriptors]. When the occasion where the step which prevents the reflection of light with the surface of the color filter layer inside displaying and the surface of color conversion layer is devised, roughly with purpose of surface

conversion, the layer which combines the particulate is formed in paint, diffused reflection of incident light happening, portion of incident light is lost, uniformity roughly laminates the plural layers where the point and the refractive index whose management of the paint in order to obtain the surface is difficult differ and the occasion where acid resisting is done, designates that the fault where the number of processes for acid resisting increases is cancelled as topic. For example, black matrix 12, color filter layer 13 and in the upper part where color conversion layer 15 and the like is laminated, it was possible on transparent substrate 11 to solve topic due to thing the optical filter combining with 10 which possesses the minute corrugated surface 14 where countless minute unevenness of pitch below wave length of light was formed and organic EL element 20.

L40 ANSWER 4 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2003:168673 HCAPLUS
 DN 138:196020
 ED Entered STN: 06 Mar 2003
 TI Transflective-type liquid crystal display providing images with high color saturation in both reflective- and transmissive modes
 IN Nagata, Yasunari; Motomura, Toshiro; Nakayama, Tadahito
 PA Kyocera Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G02F001-1335
 ICS G02F001-1343
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003066436	A2	20030305	JP 2001-261509	20010830

PRAI JP 2001-261509 20010830 <--
 CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003066436	ICM	G02F001-1335
	ICS	G02F001-1343
	IPCI	G02F0001-1335 [ICM,7]; G02F0001-1343 [ICS,7]; G02F0001-13 [ICS,7,C*]
	IPCR	G02F0001-13 [I,C*]; G02F0001-1335 [I,A]; G02F0001-1343 [I,A]

AB The LCD comprises a nematic liq. crystal sandwiched between (A) a front-side transparent substrate successively coated with a transparent electrode and an alignment layer, and (B) a back-side substrate successively coated with a 1st color filter, a transparent resin layer having uneven surface, a semitranslucent film, a 2nd color filter, an overcoat film, a transparent electrode, and an alignment layer. An extraneous incident light passes through only the 2nd color filter and reflects off the semitranslucent film in the reflective-mode, while the light incident from the back light successively passes through the 1st and 2nd color filters in the transmissive-mode, so that the LCD provides high-color-satn. images in both modes.

ST transflective liq crystal display double color filter

IT Liquid crystal displays
Optical filters
(transflective-type liq. crystal display employing double color filters)

L40 ANSWER 5 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:864141 HCAPLUS

ED Entered STN: 11 Dec 2000

TI Color filter substrate for reflected type liquid crystal display.
[Machine Translation].

IN Kitamura, Satoshi; Imayoshi, Koji; Fukukichi, Kenzou

PA Toppan Printing Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G02F001-1335

ICS G02B003-00; G02B005-20

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000338476	A2	20001208	JP 1999-144596	19990525

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PRAI JP 1999-144596

19990525 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2000338476	ICM	G02F001-1335
	ICS	G02B003-00; G02B005-20
	IPCI	G02F0001-1335 [ICM,7]; G02B0003-00 [ICS,7]; G02B0005-20 [ICS,7]
	IPCR	G02B0003-00 [I,A]; G02B0003-00 [I,C*]; G02B0005-20 [I,A]; G02B0005-20 [I,C*]; G02F0001-13 [I,C*]; G02F0001-1335 [I,A]

AB [Machine Translation of Descriptors]. In the reflected type liquid crystal display the light which the incoming radiation is done by the fact that the color filter baseplate for the liquid crystal display which can give the function which condenses efficiently in the observer site is offered, the reflected type liquid crystal display which makes the picture indication whose angle of visibility is bright widely possible is obtained. At least, the covering are done the laminate were done the color filter layer and the color filter layer which are formed in the plural coloration pixels which color transmitted light the leveling layer and the optical diffusion layer which on the transparent substrate, with the electrode baseplate which possesses the optical reflected function which was drawn up separately the liquid crystal material holding is done and it is a color filter baseplate for the reflected type liquid crystal display which the reflected type liquid crystal display the formation is done, in order to be able to give the diffraction function of light in the aforementioned each coloration pixel, the micro lens and the micro lens which the formation do the plural corrugated surfaces, at the same time, the aforementioned optical diffusion layer per 1 pixel section plural distribution facilities are done the covering is done the leveling membrane which The color filter baseplate for the liquid crystal display which designates that consists as feature.

L40 ANSWER 6 OF 17 JAPIO (C) 2006 JPO on STN

AN 1999-052364 JAPIO

TI REFLECTION TYPE LIQUID CRYSTAL DISPLAY ELEMENT

IN HIRAKI HAJIME
 PA SHARP CORP
 PI JP 11052364 A 19990226 Heisei
 AI JP 1997-205985 (JP09205985 Heisei) 19970731
 PRAI JP 1997-205985 19970731
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
 IC ICM G02F001-1335
 ICS G02B001-11; G02B005-20; G02F001-1333; G02F001-1343; G02F001-137
 AB PROBLEM TO BE SOLVED: To provide a reflection type liquid crystal display element which is high in an aperture ratio, is bright, is high in contrast, is good in color purity, allows multigradation multicolor display and has a high grade display.
 SOLUTION: This reflection type liquid crystal display element has a transparent first insulative substrate 11 which is arranged on a light incident side and is formed with pixel electrodes and driving circuit, a second insulative substrate 21 which is arranged on another one surface and is formed with a light reflection layer and/or color filter layer and counter electrode and a light controllable layer which holes liquid crystals 42 between the first and second insulative substrates. In such a case, a low reflection film, insulating film and driving electrode are arranged in this order from the light incident side on the first insulative substrate 11 and on the light controllable layer side and further, the pixel electrodes are arranged on the aperture side of the low reflection film.
 COPYRIGHT: (C)1999,JPO

L40 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1998:631473 HCAPLUS

DN 129:252333

ED Entered STN: 07 Oct 1998

TI Electroluminescence device

IN Hirai, Hiroyuki

PA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM H05B033-10

ICS H05B033-12; H05B033-14; H05B033-22; H05B033-04

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 866644	A2	19980923	EP 1998-104929	19980318
<--				
EP 866644	A3	19990331		
EP 866644	B1	20051026		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 10321369	A2	19981204	JP 1998-67503	19980317
<--				
AT 308224	E	20051115	AT 1998-104929	19980318
<--				

PRAI JP 1997-66986 A 19970319 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 866644	ICM	H05B033-10
	ICS	H05B033-12; H05B033-14; H05B033-22; H05B033-04
	IPCI	H05B0033-10 [ICM,7]; H05B0033-12 [ICS,7]; H05B0033-14 [ICS,7]; H05B0033-22 [ICS,7]; H05B0033-04 [ICS,7]; G03C0007-12 [ICS,7]; G03C0007-04 [ICS,7,C*]; G03C0007-30 [ICS,7]
	IPCR	H05B0033-04 [I,A]; H05B0033-04 [I,C*]; H05B0033-10 [I,A]; H05B0033-10 [I,C*]; H05B0033-12 [I,A]; H05B0033-12 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]; H05B0033-22 [I,A]; H05B0033-22 [I,C*]
	ECLA	H05B033/04; H05B033/10; H05B033/12; H05B033/14; H05B033/22; H01L027/32C6
JP 10321369	IPCI	H05B0033-12 [ICM,6]; G02B0005-20 [ICS,6]; G09F0009-30 [ICS,6]; H05B0033-14 [ICS,6]; H05B0033-22 [ICS,6]
	IPCR	G02B0005-20 [I,A]; G02B0005-20 [I,C*]; G09F0009-30 [I,A]; G09F0009-30 [I,C*]; H05B0033-12 [I,A]; H05B0033-12 [I,C*]; H05B0033-14 [I,A]; H05B0033-14 [I,C*]; H05B0033-22 [I,A]; H05B0033-22 [I,C*]
AT 308224	IPCI	H05B0033-10 [ICM,7]; H05B0033-12 [ICS,7]; H05B0033-14 [ICS,7]; H05B0033-22 [ICS,7]; H05B0033-04 [ICS,7]; G03C0007-12 [ICS,7]; G03C0007-04 [ICS,7,C*]; G03C0007-30 [ICS,7]
	ECLA	H01L027/32C6; H05B033/04; H05B033/10; H05B033/12; H05B033/14; H05B033/22

AB Electroluminescent devices comprising a **transparent substrate** having thereon at least: a **color filter layer**; a transparent electrode; at least one org. compd. layer including a **light-emitting layer**; and a back electrode, in this order, are described in which the **color filter layer** has red, green, and blue **pixel** patterns formed by a process which comprises: applying a coating soln. of a silver halide photog. layer onto the **transparent substrate** to form a photog. material; patternwise exposing the silver halide **color** photog. material to **light**; and then subjecting the exposed silver halide **color** photog. material to **color** development.

ST electroluminescent device color filter photog emulsion

IT Photographic emulsions

(color; electroluminescent devices with color filters formed using silver halide photog. emulsions)

IT Electroluminescent devices

Optical filters

(electroluminescent devices with color filters formed using silver halide photog. emulsions)

IT Polysulfones, uses

Polysulfones, uses

RL: DEV (Device component use); USES (Uses)

(polyether-, substrate; electroluminescent devices with color filters formed using silver halide photog. emulsions)

IT Polyethers, uses

Polyethers, uses

RL: DEV (Device component use); USES (Uses)

(polysulfone-, substrate; electroluminescent devices with color filters formed using silver halide photog. emulsions)

IT 852-38-0, PBD 7385-67-3, Nile Red 27236-84-6,

Tetraphenylbutadiene 51325-91-8, DCM1

RL: DEV (Device component use); USES (Uses)

(electroluminescent devices with color filters formed using

silver halide photog. emulsions)

L40 ANSWER 8 OF 17 JICST-EPlus COPYRIGHT 2006 JST on STN
 AN 950365487 JICST-EPlus
 TI Color Filter for Liquid Crystal Display.
 AU HANEDA AKIO
 CS Toppan Print. Co., Ltd.
 SO Kagaku to Kogyo, (1995) vol. 48, no. 4, pp. 506-509. Journal Code: F0107A (Fig. 3, Tbl. 2, Ref. 3)
 CODEN: KAKTAF; ISSN: 0022-7684
 CY Japan
 DT Journal; Commentary
 LA Japanese
 STA New
 AB Necessary properties of each layer constituting a color filter (CF) and CF production technique practically used are explained. The basic composition of a color light emitting diode display and roles and required properties of each composition layer of CF are shown, and a transparent substrate, a black matrix layer, an RGB layer and a transparent electrode layer are outlined. Outlines and features of dyeing, pigment dispersion, printing and electrodeposition as CF production technique are described. Issues and trends of CF are presented.
 CC NC06030Q; BD06010L (621.385:621.397; 681.7)
 CT liquid crystal display; color display; optical filter; transparent material; dyeing; pigment (paint); printing (graphic arts); electrodeposition; color filter
 BT display device; equipment; optical element; optical system; filter (signal); filter; material; precipitation (phase separation); phase separation; separation; adhesion (surface chemistry)

L40 ANSWER 9 OF 17 JICST-EPlus COPYRIGHT 2006 JST on STN
 AN 950248412 JICST-EPlus
 TI Developing materials for liquid crystal display. (1). Transparent conductive film substrate.
 AU KONDO TADATOSHI
 CS San'yoshinkukogyo
 SO Gekkan Shinsozai (New Materials - Technology & Applications -), (1995) vol. 6, no. 1, pp. 41-42. Journal Code: L1184A (Fig. 5, Tbl. 2)
 CODEN: SSOZEX; ISSN: 0917-0499
 CY Japan
 DT Journal; Commentary
 LA Japanese
 STA New
 AB This paper introduces creative sputtering method which has both of stability of DC magnetron method and high speed and wide applicability of high frequency magnetron method. This method is excellent in film controllability of multicomponents as film processing on color filter, suitable for mass production, easy to apply to large area substrate, and enables dense and high grade film making by adopting rotation mechanism. And, lowering of treatment temperature by about 100.DEG.C. was succeeded to obtain equivalent film specific resistance.
 CC YC020200; NC06030Q (666.1; 621.385:621.397)
 CT liquid crystal display; flat glass; transparent material; thin film; magnetron sputtering; electrical property; transference electrode; optical filter; optical property; membrane and film; color filter
 BT display device; equipment; glass; ceramics; plate classified by material; plate (material); material; sputtering; electrode; optical element; optical system; filter (signal); filter

L40 ANSWER 10 OF 17 JAPIO (C) 2006 JPO on STN
 AN 2005-037471 JAPIO
 TI OPTICAL FILTER FOR ORGANIC EL DISPLAY, AND ORGANIC EL DISPLAY USING

SAME

IN BABA YASUKO; ASANO MASAOKI
 PA DAINIPPON PRINTING CO LTD
 PI JP 2005037471 A 20050210 Heisei
 AI JP 2003-197632 (JP2003197632 Heisei) 20030716
 PRAI JP 2003-197632 20030716
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2005
 IC ICM G02B005-20
 ICS H05B033-12; H05B033-14
 AB PROBLEM TO BE SOLVED: To provide an optical filter for dissolving the occurrence of the disconnection of an upper layer caused by the cause of a step generated by a protective layer since the protective layer covering a color filter layer, a color conversion layer or the like before forming each layer on and after a first electrode layer, and to provide an organic EL display using it.
 SOLUTION: The optical filter comprises: laminating a color filter layer color-correcting incident light at each pixel on a recessed region provided on a transparent substrate at the lowest; covering the color filter layer by the protection layer, being formed so as to bury a gap in the recessed region; and connecting the surface of the protection layer and the surface of the substrate out of the recessed region.
 COPYRIGHT: (C)2005,JPO&NCIPI

L40 ANSWER 11 OF 17 JAPIO (C) 2006 JPO on STN
 AN 2004-258586 JAPIO
 TI OPTICAL FILTER AND ORGANIC EL DISPLAY USING SAME
 IN BABA YASUKO; ASANO MASAOKI
 PA DAINIPPON PRINTING CO LTD
 PI JP 2004258586 A 20040916 Heisei
 AI JP 2003-52204 (JP2003052204 Heisei) 20030228
 PRAI JP 2003-52204 20030228
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2004
 IC ICM G02B005-20
 ICS G02B001-11; H05B033-12; H05B033-14
 AB PROBLEM TO BE SOLVED: To eliminate the following problems; when taking measures to prevent the light reflection on the surface of a color filter layer and that of a color conversion layer inside a display, incident light is partly lost due to irregular reflection when a particles-blended layer is formed by coating for the purpose of roughening the surface and it is difficult to control a coating material for obtaining a fixed rough surface, and the number of processes for preventing the reflection increases when preventing the reflection by laminating a plurality of layers with different refractive indices.
 SOLUTION: This optical filter is formed by combining an organic EL element 20 with an optical filter having a fine-rugged surface 14 with innumerable ruggedness at the pitch of the wavelength of light or less formed above the lamination of a black matrix 12, a color filter layer 13, and a color conversion layer 15 on a transparent substrate 11.
 COPYRIGHT: (C)2004,JPO&NCIPI

L40 ANSWER 12 OF 17 JAPIO (C) 2006 JPO on STN
 AN 2004-258527 JAPIO
 TI LIQUID CRYSTAL DISPLAY
 IN ARAI NORIHIRO; SUZUKI TAKESHI; NISHINO TOSHIHARU; KOBAYASHI KUNPEI
 PA CASIO COMPUT CO LTD

PI JP 2004258527 A 20040916 Heisei
 AI JP 2003-51628 (JP2003051628 Heisei) 20030227
 PRAI JP 2003-51628 20030227
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2004
 IC ICM G02F001-13357
 AB PROBLEM TO BE SOLVED: To provide a transfective liquid crystal display in which favorable display quality with sufficient intensity of light can be obtained in both of transmissive display and reflective display without having a defocused image.
 SOLUTION: A rough base layer 16 is formed on the inner face of a back side transparent substrate 12 and in a part corresponding to the reflective part Dr of a pixel region Dp, and a scattering reflective layer 17 is deposited thereon. A color filter layer 18 is formed to cover the scattering reflective layer 17. A pixel electrode 13 and a thin film transistor 14 are arranged in each pixel region Dp on the inner face of a front side transparent substrate 11, and a liquid crystal layer is sealed between the transparent substrates 11, 12. Front and back and front retardation plates 4, 5 and front and back polarizing plates 2, 3 are successively layered as interposing the liquid crystal cell 1 to constitute a liquid crystal display element LD. Then a surface light source back light BL with a light guide plate is disposed in the back side of the liquid crystal display element LD.
 COPYRIGHT: (C)2004,JPO&NCIPI

L40 ANSWER 13 OF 17 JAPIO (C) 2006 JPO on STN
 AN 2004-152749 JAPIO
 TI COLOR CONVERSION MEMBER AND EL DISPLAY USING IT
 IN ASANO MASAOKI; ARAI KOJI
 PA DAINIPPON PRINTING CO LTD
 PI JP 2004152749 A 20040527 Heisei
 AI JP 2003-348687 (JP2003348687 Heisei) 20031007
 PRAI JP 2002-294611 20021008
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2004
 IC ICM H05B033-12
 ICS G02B005-20; H05B033-10; H05B033-14
 AB PROBLEM TO BE SOLVED: To provide a color conversion member in which deterioration of color conversion function and external light reflection are prevented, and color rendering property is enhanced.
 SOLUTION: This member is constituted of a transparent substrate, the color conversion layer, and a color filter layer.
 . The color conversion layer converts an incident light of every pixel into an outgoing light of a different color from that of the incident light, the color conversion layers of two kinds or more are arranged on the transparent substrate, and the color filter layer is formed between the transparent substrate side of either of color conversion layers or other adjacent color conversion layers to make color conversion.
 COPYRIGHT: (C)2004,JPO

L40 ANSWER 14 OF 17 JAPIO (C) 2006 JPO on STN
 AN 2000-250023 JAPIO
 TI COLOR FILTER FOR IPS MODE LIQUID CRYSTAL DISPLAY DEVICE
 IN OKAMOTO TAKASHI
 PA TOPPAN PRINTING CO LTD

PI JP 2000250023 A 20000914 Heisei
 AI JP 1999-54641 (JP11054641 Heisei) 19990302
 PRAI JP 1999-54641 19990302
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000
 IC ICM G02F001-1335
 ICS G02B001-11; G02B005-02; G02B005-20
 AB PROBLEM TO BE SOLVED: To decrease the reflection of external light or glare and to avoid adverse influences on the display quality by forming a **color filter layer** on one **surface** of a **transparent substrate** and forming a transparent electrode layer, light-scattering layer and dielectric thin film antireflection layer on the other surface of the substrate.
 SOLUTION: This **color filter** 80 for an in-plane switching (IPS) mode liquid crystal display device has a black matrix layer 12 as a **light-shielding part** on one **surface** of a **transparent substrate** 10, a **color filter layer** 13 formed as **pixels**, and an overcoat layer 14. A transparent electrode layer 28, **light** - scattering layer 60, and dielectric thin film antireflection layer 70 are laminated on the other **surface** of the **transparent substrate** 10 which faces the observer when the device is used. In this method, the transparent electrode layer 28 is formed for the antistatic effect on the **color filter**. The dielectric thin film antireflection layer 70 is formed to decrease the reflection of external light and to increase the transmittance.
 COPYRIGHT: (C)2000,JPO

L40 ANSWER 15 OF 17 JAPIO (C) 2006 JPO on STN
 AN 2000-066198 JAPIO
 TI COLOR FILTER SUBSTRATE FOR REFLECTION TYPE LIQUID CRYSTAL DISPLAY DEVICE AND REFLECTION TYPE LIQUID CRYSTAL DISPLAY DEVICE USING THE SAME
 IN YAMAMOTO TAKESHI; OKAMOTO TAKASHI
 PA TOPPAN PRINTING CO LTD
 PI JP 2000066198 A 20000303 Heisei
 AI JP 1998-232790 (JP10232790 Heisei) 19980819
 PRAI JP 1998-232790 19980819
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000
 IC ICM G02F001-1335
 ICS G02B005-20; G09F009-35
 AB PROBLEM TO BE SOLVED: To provide the color filter substrate which enables improvement in productivity of the opposite substrate without adversely affecting its functions and the manufacture of an inexpensive reflection type liquid crystal display device by successively stacking up a light diffusion/reflection **layer** and a **color filter layer** on a substrate, in that order.
 SOLUTION: This display device 30 consists of a **color filter substrate** 39, a liquid crystal 35, an opposite substrate 38 to the **color filter substrate** 39, etc., wherein the opposite substrate 38 consists of a **transparent substrate** 31 and a driving element required for **pixel display**, transparent **pixel electrodes** 34, etc., each of which is formed on the substrate 31. This **color filter substrate** 39, consists of a substrate 37, a **light diffusion/reflection layer** 36, a **color filter layer** 32, etc., wherein recessed and projecting parts for diffusing light are formed in the surface of the substrate 37, being on the opposite side to the opposite substrate 38 and the **light diffusion/reflection layer** 36 is formed on the recessed and projecting parts. This **light diffusion/reflection layer** 36

is a metallic layer made of aluminum, silver, or the like and concurrently used as an electrode. In this display device, light I from the outside is passed through the color filter layer 32 to convert the light into colored light and the colored light is reflected by a light diffusion/reflection layer 36 and the diffused and reflected, colored light is again passed through the color filter layer 32 to allow the diffused and reflected light Re to exit to the outside.
COPYRIGHT: (C)2000,JPO

L40 ANSWER 16 OF 17 JAPIO (C) 2006 JPO on STN
AN 2000-029006 JAPIO
TI LOW-REFLECTIVE THIN FILM SUBSTRATE, COLOR
FILTER SUBSTRATE AND LIQUID CRYSTAL DISPLAY
IN FUJITA TATSUYA; SATO TAKASHI; SAKONO IKUO
PA SHARP CORP
PI JP 2000029006 A 20000128 Heisei
AI JP 1998-197851 (JP10197851 Heisei) 19980713
PRAI JP 1998-197851 19980713
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000
IC ICM G02F001-1333
ICS G02B001-11; G02B005-20; G02F001-1335; G09F009-30
AB PROBLEM TO BE SOLVED: To obtain sufficient light-shielding property and low reflectivity without using metal chromium by laminating a first layer film consisting of tantalum nitride and a second layer film consisting of tantalum or tantalum nitride in this order from the side of a transparent substrate.
SOLUTION: In this thin film substrate, as a low-reflective thin film for a black matrix a two-layer structure consisting of tantalum and tantalum nitride (Ta/TaNx), or tantalum nitride and tantalum nitride (TaNx/TaNx) is formed on a transparent substrate. That is, a tantalum nitride film 102 is formed as an antireflection film on a transparent substrate 101 such as a glass substrate, and a tantalum film 103 is laminated as a light-shielding film onto the tantalum nitride film 102, to obtain sufficient light-shielding properties and low reflectivity from the side of the transparent substrate 101 by utilizing a thin film interference effect. Also, this color filter substrate is provided with a black matrix consisting of a first layer film as an antireflection film and a second layer film as a light-shielding film and therefore, by sufficiently shielding the space between pixels from light and preventing reflection of light entering from the side of the transparent substrate the excellent display quality is attained.
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L40 ANSWER 17 OF 17 JAPIO (C) 2006 JPO on STN
AN 2000-019507 JAPIO
TI REFLECTION PLATE FOR TRANSLUCENT TYPE COLOR LIQUID CRYSTAL AND COLOR LIQUID CRYSTAL DISPLAY DEVICE USING THE REFLECTION PLATE
IN YOSHIKAWA MINORU
PA MICRO GIJUTSU KENKYUSHO:KK
PI JP 2000019507 A 20000121 Heisei
AI JP 1998-189070 (JP10189070 Heisei) 19980703
PRAI JP 1998-189070 19980703
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000
IC ICM G02F001-1335
ICS G09F009-00
AB PROBLEM TO BE SOLVED: To make it possible to utilize the transmitted light of the light from an illumination light source and the reflected light of external light by forming a reflection film to

diffuse the external light on the front surface side of a transparent plate transparent to light and forming light transmission paths to allow the uniform transmission of the light from the rear surface side of the transparent plate over the entire surface on the front surface side by pattern formation of the reflection film.

SOLUTION: The front surface of the transparent plate 11, such as a glass plate, transparent to the light is formed as a uniform and fine rough surface 11a by chemical etching, etc. The reflection film 12 consisting of material, such as silver, is formed on the rough surface 11a. Next, the light transmission paths 13 transparent to the light are patterned and formed by etching, etc., at specified uniform intervals on the reflection film 12. A transparent protective film 14 is formed on the front surface of the patterned and formed reflection film 12. The reflection plate 10 for translucent type color liquid crystals formed with the protective film 14 is used as one substrate for liquid crystals and color filter layers 15 of three colors R, G, B which are pixels are formed to a required film thickness on the protective film 14. Next, striped transparent electrode layers 16 are formed on the patterned and formed color filter layers 15.

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